SYLVANIA SEMICONDUCTOR CATALOG

TRANSISTORS, INTEGRATED CIRCUITS, DIODES, RECTIFIERS AND MICROWAVE SEMICONDUCTORS

SYLVANIA UNIVERSAL HIGH LEVEL

Type No.	Logic Function	Outline Pg. 19	Power Supply Volts	Clock Rate mc	Fan In	Fan Out
SNG-4	Dual NAND Gate	B	+5, −4	20	3 dual	20 dual
SNG-4/F	Dual NAND Gate	C	+5, −4	20	3 dual	20 dual
SNG-4A[1]	Dual NAND Gate	B	+5	20	3 dual	20 dual
SNG-4B[1]	Dual NAND Gate	B	+5	20	4 dual	20 dual
SNG-4A/F[1]	Dual NAND Gate	C	+5	20	3 dual	20 dual
SNG-4B/F[1]	Dual NAND Gate	C	+5	20	4 dual	20 dual
SNG-5	Dual NAND OR Gate	B	+5, −4	20	3 dual	20
SNG-5/F	Dual NAND OR Gate	C	+5, −4	20	3 dual	20
SNG-5A[1]	Dual NAND OR Gate	B	+5	20	3 dual	20
SNG-5B[1]	Dual NAND OR Gate	B	+5	20	4 dual	20
SNG-5A/F[1]	Dual NAND OR Gate	C	+5	20	3 dual	20
SNG-5B/F[1]	Dual NAND OR Gate	C	+5	20	4 dual	20
SNG-6	NAND Gate	B	+5, −4	20	6	20
SNG-6/F	NAND Gate	C	+5, −4	20	6	20
SNG-6A[1]	NAND Gate	B	+5	20	6	20
SNG-6B[1]	NAND Gate	B	+5	20	8	20
SNG-6A/F[1]	NAND Gate	C	+5	20	6	20
SNG-6B/F[1]	NAND Gate	C	+5	20	8	20
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SFF-2	Flip Flop R-S-T	B	+5, −4	20	–	20
SFF-2/F	Flip Flop R-S-T	C	+5, −4	20	–	20
SFF-2A[1]	Flip Flop R-S-T	B	+5	20	–	20
SFF-2A/F[1]	Flip Flop R-S-T	C	+5	20	–	20
SFF-3A[1]	Flip Flop Single Phase	B	+5	20	–	20
SFF-3A/F[1]	Flip Flop Single Phase	C	+5	20	–	20

1—*Single Power Supply*

TRANSISTOR-TRANSISTOR LOGIC (T^2L)

Type No.	Description	Outline Pg. 19	Power Supply volts	Clock Rate mc	Fan In	Fan Out
SNG-2	NAND Gate	A	3 to 5	20	3	5
SNG-3	NAND Gate	A	3 to 5	20	3	5
SNG-7	Dual NAND Gate	B	2.5 to 5	20	4 dual	5 dual
SNG-7/F	Dual NAND Gate	C	2.5 to 5	20	4 dual	5 dual

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Your Assurance of Uniformity and Reliability

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**Meets all requirements of applicable military specifications*

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NPN SILICON EPITAXIAL PLANAR TRANSISTORS SMALL SIGNAL

Absolute Maximum Ratings (25°C)

Type No.	Outline Pg. 14	Power Dissipation mw	V_{CB} Volts	I_C ma	GENERAL CHARACTERISTICS
2N703	B	360	25	50	f_t—70 mc
2N706	B	360	25	50	t_{stg}=60nsec
2N706/46	C	400	25	50	t_{stg}=60nsec
2N706/51	D	300	25	50	t_{stg}=60nsec
2N706JAN	B	300	25	50	t_{stg}=60nsec
2N706A	B	360	25	50	t_{on}=40nsec, t_{stg}=25nsec, t_{off}=75nsec
2N706A/46	C	400	25	50	t_{on}=40nsec, t_{stg}=25nsec, t_{off}=75nsec
2N706A/51	D	300	25	50	t_{on}=40nsec, t_{stg}=25nsec, t_{off}=75nsec
2N706B	B	360	25	50	t_{on}=40nsec, t_{stg}=25nsec, t_{off}=75nsec
2N706B/46	C	400	25	50	t_{on}=40nsec, t_{stg}=25nsec, t_{off}=75nsec
2N706B/51	D	300	25	50	t_{on}=40nsec, t_{stg}=25nsec, t_{off}=75nsec
2N706C	B	360	40	200	t_{on}=40nsec, t_{stg}=25nsec, t_{off}=75nsec
2N706C/46	C	400	40	200	t_{on}=40nsec, t_{stg}=25nsec, t_{off}=75nsec
2N706C/51	D	300	40	200	t_{on}=40nsec, t_{stg}=25nsec, t_{off}=75nsec
2N708	B	360	40	—	t_{stg}=25nsec, V_{ce} (sat)=0.4v
2N708/46	C	400	40	—	t_{stg}=25nsec, V_{ce} (sat)=0.4v
2N708/51	D	300	40	—	t_{stg}=25nsec, V_{ce} (sat)=0.4v
2N708A	B	360	50	—	t_{stg}=18nsec
2N709	B	360	15	—	f_t=600 mc
2N709/46	C	400	15	—	f_t=600 mc
2N709/51	D	300	15	—	f_t=600 mc
2N709A	C	400	15	—	f_t=800 mc
2N709A/46	C	400	15	—	f_t=800 mc
2N709A/51	D	300	15	—	f_t=800 mc
2N743	B	360	20	200	t_{on}=16nsec, t_{stg}=14nsec, t_{off}=24nsec
2N743/46	C	400	20	200	t_{on}=16nsec, t_{stg}=14nsec, t_{off}=24nsec
2N743/51	D	300	20	200	t_{on}=16nsec, t_{stg}=14nsec, t_{off}=24nsec
2N744	B	360	20	200	t_{on}=16nsec, t_{stg}=18nsec, t_{off}=24nsec
2N744/46	C	400	20	200	t_{on}=16nsec, t_{stg}=18nsec, t_{off}=24nsec
2N744/51	D	300	20	200	t_{on}=16nsec, t_{stg}=18nsec, t_{off}=24nsec
2N753	B	360	25	50	t_{on}=35nsec, t_{stg}=40nsec, t_{off}=75nsec
2N753/46	C	400	25	50	t_{on}=35nsec, t_{stg}=40nsec, t_{off}=75nsec
2N753/51	D	300	25	50	t_{on}=35nsec, t_{stg}=40nsec, t_{off}=75nsec
2N784A	B	360	40	200	t_{on}=20nsec, t_{stg}=15nsec, t_{off}=40nsec
2N748A/46	C	400	40	200	t_{on}=20nsec, t_{stg}=15nsec, t_{off}=40nsec
2N784A/51	D	300	40	200	t_{on}=20nsec, t_{stg}=15nsec, t_{off}=40nsec
2N834	B	360	40	200	t_{on}=15nsec, t_{stg}=25nsec, t_{off}=30nsec
2N834/46	C	400	40	200	t_{on}=16nsec, t_{stg}=25nsec, t_{off}=30nsec
2N835	B	360	25	200	t_{on}=20nsec, t_{stg}=35nsec, t_{off}=35nsec
2N835/46	C	400	25	200	t_{on}=20nsec, t_{stg}=35nsec, t_{off}=35nsec
2N835/51	D	300	25	200	t_{on}=20nsec, t_{stg}=35nsec, t_{off}=35nsec
2N914	B	360	40	—	t_{on}=40nsec, t_{stg}=20nsec, t_{off}=40nsec
2N914/46	C	400	40	—	t_{on}=40nsec, t_{stg}=20nsec, t_{off}=40nsec
2N914/51	D	300	40	—	t_{on}=40nsec, t_{stg}=20nsec, t_{off}=40nsec
2N915	B	360	70	200	f_t=250 mc
2N917	B	360	15	—	t_{on}=15nsec, t_{stg}=6nsec, t_{off}=15nsec
2N917/46	C	400	15	—	t_{on}=15nsec, t_{stg}=6nsec, t_{off}=15nsec
2N917/51	D	300	15	—	t_{on}=15nsec, t_{stg}=6nsec, t_{off}=15nsec
2N918	B	360	30	50	f_t=600 mc
2N918/46	C	400	30	50	f_t=600 mc
2N918/51	D	300	30	50	f_t=600 mc
2N929	B	360	45	30	f_t=30 mc
2N929/51	D	300	45	30	f_t=30 mc
2N930	B	360	45	30	f_t=30 mc
2N930/51	D	300	45	30	f_t=30 mc
2N1708	C	400	25	200	t_{on}=40nsec, t_{stg}=25nsec, t_{off}=75nsec
2N1962	C	400	40	200	t_{on}=18nsec, t_{stg}=10nsec, t_{off}=30nsec

NPN SILICON EPITAXIAL PLANAR TRANSISTORS SMALL SIGNAL *Continued*

Absolute Maximum Ratings (25°C)

Type No.	Outline Pg. 14	Power Dissipation mw	V_{CB} Volts	I_C ma	GENERAL CHARACTERISTICS
2N1963	C	400	30	200	t_{on}=20nsec, t_{stg}=25nsec, t_{off}=75nsec
2N2205	B	360	25	200	t_{on}=40nsec, t_{stg}=25nsec, t_{off}=75nsec
2N2206	C	400	25	—	t_{on}=40nsec, t_{stg}=35nsec, t_{off}=75nsec
2N2368	B	360	40	500	t_{on}=12nsec, t_{stg}=10nsec, t_{off}=15nsec
2N2368/51	D	300	40	500	t_{on}=12nsec, t_{stg}=10nsec, t_{off}=15nsec
2N2369	B	360	40	500	t_{on}=12nsec, t_{stg}=13nsec, t_{off}=18nsec
2N2369/51	D	300	40	500	t_{on}=12nsec, t_{stg}=13nsec, t_{off}=18nsec
2N2475	B	360	15	—	t_{on}=12nsec, t_{stg}=13nsec, t_{off}=18nsec
2N2475/46	C	400	15	—	f_t=600 mc
2N2475/51	D	300	15	—	f_t=600 mc
2N2481NAVY	B	360	40	—	t_{on}=40nsec, t_{stg}=20nsec, t_{off}=45nsec
2N2501	B	360	40	—	t_{stg}=15nsec
2N2651	B	360	40	—	t_{on}=35nsec, t_{stg}=25nsec, t_{off}=75nsec
2N2719	B	360	25	200	t_{stg}=60nsec
2N2784	B	360	15	—	f_t=1000 mc
2N2784/46	C	400	15	—	f_t=1000 mc
2N2784/51	D	300	15	—	f_t=1000 mc

PNP SILICON EPITAXIAL PLANAR TRANSISTORS (LARGE SIGNAL)

Absolute Maximum Ratings (25°C)

Type No.	Outline Pg. 14	V_{CB} Volts	V_{CEO} Volts	I_C ma	Power Dissipation (Free Air) mw	GENERAL CHARACTERISTICS
2N722	B	—50	—35	600	360	f_t=60 mc min
2N1131	A	—50	—35	600	600	f_t=50 mc min
2N1131/51	D	—50	—35	600	300	f_t=50 mc min
2N1131A	A	—60	—40	600	600	t_{on}=45nsec, t_{off}=35 nsec
2N1132	A	—50	—35	600	600	f_t=60 mc min
2N1132/46	C	—50	—35	600	400	f_t=60 mc min
2N1132/51	D	—50	—35	600	300	f_t=60 mc min
2N1132A	A	—60	—40	600	600	t_{on}=45nsec, t_{off}=35nsec
2N1132B	A	—70	—45	600	600	t_{on}=45nsec, t_{off}=35nsec
2N1132B/46	C	—70	—45	600	400	t_{on}=45nsec, t_{off}=35nsec
2N1132B/51	D	—70	—45	600	300	t_{on}=45nsec, t_{off}=35nsec
2N2303	A	—50	—35	500	600	f_t=60 mc min
2N2800	A	—50	—35	800	800	t_{on}=60nsec, t_{off}=270nsec
2N2800/46	C	—50	—35	800	400	t_{on}=60nsec, t_{off}=270nsec
2N2800/51	D	—50	—35	800	300	t_{on}=60nsec, t_{off}=270nsec
2N2801	A	—50	—35	800	800	t_{on}=60nsec, t_{off}=270nsec
2N2801/46	C	—50	—35	800	400	t_{on}=60nsec, t_{off}=270nsec
2N2801/51	D	—50	—35	800	300	t_{on}=60nsec, t_{off}=270nsec
2N2927	A	—25	—25	500	800	t_{on}=75nsec, t_{off}=170nsec
2N2927/46	C	—25	—25	500	400	t_{on}=75nsec, t_{off}=170nsec
2N2927/51	D	—25	—25	500	300	t_{on}=75nsec, t_{off}=170nsec
2N3081	A	—70	—50	600	600	f_t=150 mc min; V_{EBO}=6V min
2N3081/46	C	—70	—50	600	400	f_t=150 mc min; V_{EBO}=6V min
2N3081/51	D	—70	—50	600	300	f_t=150 mc min; V_{EBO}=6V min

NPN SILICON EPITAXIAL PLANAR TRANSISTORS (LARGE SIGNAL)

Absolute Maximum Ratings (25°C)

Type No.	Outline PG 14	Power Diss. mw	V_{CB} Volts	V_{CEX} Volts	I_C ma	GENERAL CHARACTERISTICS
2N696, JAN	A	600	60	–	500	h_{FE} @ 150 ma (pulse)=20
2N697, JAN	A	600	60	–	500	h_{FE} @ 150 ma (pulse)=40
2N717	B	400	60	40	–	h_{FE} @ 150 ma (pulse)=20-60
2N718	B	400	60	40	–	h_{FE} @ 150 ma (pulse)=40-120
2N718A	B	500	75	50	–	h_{FE} @ 500 ma (pulse)=20
2N719	B	400	120	80	–	h_{FE} @ 150 ma (pulse)=20-60
2N720	B	400	120	80	–	h_{FE} @ 150 ma (pulse)=40-120
2N720A	B	500	120	100	–	h_{FE} @ 150 ma (pulse)=40-120
2N1613	A	800	75	50	1000	$t_d+t_r+t_f$=30 nsec
2N1711	A	800	75	50	1000	h_{FE} @ 150 ma (pulse) =100-300
2N1890	A	800	100	80	–	h_{FE} @ 150 ma (pulse) =100-300
2N1893	A	800	120	100	500	h_{FE} @ 150 ma (pulse)=40-120
2N1958	A	600	60	–	500	t_{on}=65nsec, t_{stg}=25nsec, t_{off}=45nsec
2N1958A	A	600	60	40	500	t_{on}=60nsec, t_{stg}=25nsec, t_{off}=45nsec
2N1959	A	600	60	–	500	t_{on}=65nsec, t_{stg}=25nsec, t_{off}=45nsec
2N1959A	A	600	60	40	500	t_{on}=60nsec, t_{stg}=25nsec, t_{off}=45nsec
2N1959A/51	A	300	60	40	500	t_{on}=60nsec, t_{stg}=25nsec, t_{off}=45nsec
2N1964	C	400	60	–	500	t_{on}=60nsec, t_{stg}=25nsec, t_{off}=45nsec
2N1965	C	400	60	–	500	t_{on}=65nsec, t_{stg}=25nsec, t_{off}=45nsec
2N1990	A	600	100	–	500	h_{FE} @ 30 ma (pulse)=20
2N2102	A	1000	120	80	1000	h_{FE} @ 1000 ma (pulse)=10
2N2217	A	800	60	30	800	h_{FE} @ 150 ma (pulse)=20-60
2N2217/51	D	400	60	30	800	h_{FE} @ 150 ma (pulse)=20-60
2N2218	A	800	60	30	800	h_{FE} @ 150 ma (pulse)=40-120
2N2218/51	D	300	60	30	800	h_{FE} @ 150 ma (pulse)=40-120
2N2219	A	800	60	30	800	h_{FE} @ 150 ma (pulse)=100-300
2N2219/51	D	300	60	30	800	h_{FE} @ 150 ma (pulse)=100-300
2N2220	B	500	60	30	800	h_{FE} @ 150 ma (pulse)=20-60
2N2221	B	500	60	30	800	h_{FE} @ 150 ma (pulse)=40-120
2N2222	B	500	60	30	800	h_{FE} @ 150 ma (pulse)=100-300
2N2270	A	1000	60	45	1000	h_{FE} @ 150 ma pulse)=50-200
2N2297	A	800	80	35	1000	f_t=60mc
2N2297/51	D	300	80	35	1000	f_t=60mc
2N2410	A	800	60	40	800	t_{on}=65nsec, t_{off}=65nsec

NPN GERMANIUM AUDIO & POWER TRANSISTORS

Absolute Maximum Ratings (25°C)

Type No.	Application	Outline Pg. 14-15	Power Diss.* (Free Air)	V_{CB} Volts	V_{CEX} Volts	I_C Amp.	Junction Temp. (°C)	GENERAL CHARACTERISTICS
2N102/13	Audio, Power Switch	H	4W	+30	+30	1.5a	75	h_{FE} at 500 ma=10 min.
2N144/13	Audio, Power Switch	H	4W	+60	+60	0.8a	75	h_{FE} at 500 ma=10 min.
2N326	Audio Power	F	7W	+35	+35	2a	85	h_{FE} at 500 ma=30-60
2N326 JAN	Audio Power	F	7W	+35	+35	2a	85	h_{FE} at 500 ma=30-60
2N1218	Audio Power	F	6W	+45	+45	2a	85	G_{pe} at 2.5w=30-40 db
2N1292	Audio, Power Switch	F	25W	+35	+35	3a	100	h_{FE} at 500 ma=30 min
2N1294	Audio, Power Switch	F	25W	+60	+45	3a	100	h_{FE} at 500 ma=30 min
2N1296	Audio, Power Switch	F	25W	+80	+60	3a	100	h_{FE} at 500 ma=30 min
2N1321	Audio, Power Switch	G	25W	+35	+30	3a	100	h_{FE} at 500 ma=30 min
2N1323	Audio, Power Switch	G	25W	+60	+45	3a	100	h_{FE} at 500 ma=30 min
2N1325	Audio, Power Switch	G	25W	+80	+60	3a	100	h_{FE} at 500 ma=30 min

**AT 25°C case temperature*

NPN GERMANIUM AUDIO FREQUENCY TRANSISTORS

Absolute Maximum Ratings (25°C)

Type No.	Application	Outline Pg. 14	Power Diss. (Free Air)	V_{CB} Volts	V_{CEX} Volts	I_C	Junction Temp. (°C)	GENERAL CHARACTERISTICS
2N35	Gen. Purp. Audio, Switch	E	180mw	+40	+25	100ma	85	G_{pe}=35-39 db, h_{FE}=25-125
2N213	High Gain Audio	E	180mw	+40	+25	100ma	85	G_{pe}=38-42 db, h_{FE}=100-250
2N213A	High Gain Audio	E	180mw	+40	+25	100ma	85	G_{pe}=38-42 db, h_{FE}=100-250
2N214	Audio Output, Switch	E	180mw	+40	+25	100ma	85	h_{FE} at 35 ma=50-100
2N228	High Gain Audio	E	180mw	+40	+15	100ma	85	G_{pe}=35-41 db, h_{FE}=55-100
2N229	General Purpose	E	180mw	+10	+10	100ma	85	G_{pe}=34 db min., h_{FE}=25 min.
2N306	General Purpose	E	180mw	+20	+15	100ma	85	G_{pe}=34-40 db, h_{FE}=25-125
2N647/22	Audio Output Amplifier	E	180mw	+25	+25	150	85	h_{FE} at Ic=50ma=50-150
2N649/22	Audio Output Amplifier	E	180mw	+18	+18	150	85	h_{FE} at Ic=50ma=50-150
2N1059	Audio Output, Switch	E	180mw	+20	+15	100ma	85	h_{FE} at Ic=35ma=50-100
2N1101	Audio Output, Switch	E	180mw	+20	+15	100ma	85	h_{FE} at Ic=35ma=30-60
2N1102	Audio Output, Switch	E	180mw	+40	+25	100ma	85	h_{FE} at Ic=35ma=30-60
2N1251	High Gain Audio	E	180mw	+20	+15	100ma	85	G_{pe}=37-43 db, h_{FE}=70-250
2N1431	Audio Output, Switch	E	180mw	+20	+15	100ma	85	h_{FE} at Ic=35ma=75-150
2N2354	Audio Output, Switch	E	180mw	+20	+15	100ma	85	h_{FE} at Ic=35ma=50-150

NPN GERMANIUM MEDIUM FREQUENCY AMPLIFIER TRANSISTORS

Absolute Maximum Ratings (25°C)

Type No.	Application	Outline Pg. 14	Power Diss. (Free Air)	V_{CB} Volts	V_{CEX} Volts	1_C	Junction Temp. (°C)	GENERAL CHARACTERISTICS
2N94	IF Amplifier	E	150mw	+20	+20	100	85	G_{pe} at 455kc=24-30 db
2N94A	IF Amplifier	E	150mw	+20	+20	100	85	G_{pe} at 455kc=26-30 db
2N193	Oscillator	E	150mw	+18	+18	100	85	f_{hfb}=2.0 mc min.
2N194A	Converter/Mixer	E	150mw	+18	+18	100	85	Conversion Gain=20-26 db at 1.6 mcs.
2N211	Converter/Mixer	E	150mw	+18	+18	100	85	f_{hfb}=5-15 mcs.
2N212	Converter/Mixer	E	150mw	+18	+18	100	85	Conversion Gain=25-31 db at 1.6 mcs.
2N216	IF Amplifier	E	150mw	+18	+18	100	85	G_{pe} at 455kc=24-27 db
2N233	General Purpose	E	150mw	+10	+10	100	85	G_{pe} at 455kc = 21 db min.
2N233A	IF Amplifier	E	150mw	+18	+18	100	85	G_{pe} at 455kc=21-27 db
2N515	IF Amplifier	E	150mw	+18	+18	100	85	G_{pe} at 455kc=23-27 db
2N516	IF Amplifier	E	150mw	+18	+18	100	85	G_{pe} at 455kc = 25-29 db
2N517	IF Amplifier	E	150mw	+18	+18	100	85	G_{pe} at 455kc=27-31 db
2N1058	Converter/Mixer	E	150mw	+18	+18	100	85	Conversion Gain=22.5-25.5 db at 1.6 mcs.

PNP GERMANIUM ALLOY MEDIUM POWER TRANSISTORS

Absolute Maximum Ratings (25°C)

Type No.	Outline Pg. 15	V_{CBO} Vdc	V_{EBO} Vdc	I_C Adc	I_B Adc	P_C W	GENERAL CHARACTERISTICS h_{FE} at
2N1038	I	—40	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1 Adc
2N1038-1	J	—40	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1 Adc
2N1038-2	K	—40	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1 Adc
2N1039	I	—60	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1 Adc
2N1039-1	J	—60	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1 Adc
2N1039-2	K	—60	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1 Adc

PNP GERMANIUM ALLOY MEDIUM POWER TRANSISTORS *continued*

Absolute Maximum Ratings (25C)

Type No.	Outline Pg. 15	V_{CBO} Vdc	V_{EBO} Vdc	I_C Adc	I_B Adc	P_C W	GENERAL CHARACTERISTICS h_{FE} at
2N1040	I	—80	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1.0 Adc
2N1040-1	J	—80	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1.0 Adc
2N1040-2	K	—80	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1.0 Adc
2N1041	I	—100	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1.0 Adc
2N1041-1	J	—100	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1.0 Adc
2N1041-2	K	—100	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1.0 Adc
2N1042	K	—40	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1 Adc
2N1042-1	J	—40	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1 Adc
2N1042-2	I	—40	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1 Adc
2N1043	K	—60	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N1043-1	J	—60	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N1043-2	I	—60	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N1044	K	—80	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N1044-1	J	—80	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N1044-2	I	—80	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N1045	K	—100	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N1045-1	J	—100	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N1045-2	I	—100	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N2552	J	—40	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1.0 Adc
2N2553	J	—60	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1.0 Adc
2N2554	J	—80	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1.0 Adc
2N2555	J	—100	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1.0 Adc
2N2556	K	—40	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1.0 Adc
2N2557	K	—60	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1.0 Adc
2N2558	K	—80	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1.0 Adc
2N2559	K	—100	—20	3.0	1.0	20	20-60 V_{CE}=0.5v, Ic=1.0 Adc
2N2560	J	—40	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N2561	J	—60	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N2562	J	—80	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N2563	J	—100	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N2564/5	I	—40	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N2565/5	I	—60	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N2566/5	I	—80	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc
2N2567/5	I	—100	—20	3.0	1.0	20	20-60 V_{CE}=1.0v, Ic=3 Adc

PNP GERMANIUM EPITAXIAL MESA TRANSISTORS (AMPLIFIER/SWITCHING)

Absolute Maximum Ratings (25°C)

Type No.	Outline Pg. 14	V_{CB} Volts	I_C ma	Power Diss. mw	Junction Temp. (°C)	GENERAL CHARACTERISTICS
2N501/18	B	—15	200	150	100	t_{on}=18nsec, t_f=10nsec
2N700/18	B	—25	50	75	100	f_t=500 mc
2N705	B	—15	50	150	100	t_r=60nsec, t_{stg}=75nsec, t_f=80nsec
2N705USN	B	—15	50	150	100	t_r=60nsec, t_{stg}=75nsec, t_f=80nsec
2N705A	B	—15	100	150	100	t_r=75nsec, t_{stg}=50nsec, t_f=75nsec
2N710	B	—15	50	150	100	t_r=60nsec, t_{stg}=75nsec, t_f=80nsec
2N711	B	—12	50	150	100	t_r=70nsec, t_{stg}=100nsec, t_f=90nsec
2N711A	B	—15	200	150	100	t_r=100nsec, t_{stg}=150nsec, t_f=150nsec
2N711B	B	—18	200	150	100	t_r=100nsec, t_{stg}=140nsec, t_f=110nsec
2N741	B	—15	100	150	100	G_{pe} at 30 mc—16 db min
2N741A	B	—20	100	150	100	f_t=300 mc min
2N781	B	—15	200	150	100	t_{on}=60nsec, t_{stg}=20nsec, t_f=50nsec
2N782	B	—12	200	150	100	t_{on}=75nsec, t_{stg}=35nsec, t_f=75nsec
2N828	B	—15	200	150	100	t_{on}=70nsec, t_{stg}=50nsec, t_f=50nsec
2N960	B	—15	150	150	100	t_{on}=50nsec, t_{off}=85nsec
2N961	B	—12	150	150	100	t_{on}=50nsec, t_{off}=85nsec
2N962	B	—12	150	150	100	t_{on}=50nsec, t_{off}=100nsec
2N962USN	B	—12	150	150	100	t_{on}=50nsec, t_{off}=100nsec
2N963	B	—12	150	150	100	t_{on}=60nsec, t_{off}=120nsec
2N964	B	—15	150	150	100	t_{on}=50nsec, t_{off}=85nsec
2N964USN	B	—15	150	150	100	t_{on}=50nsec, t_{off}=85nsec
2N964A	B	—15	100	300	100	t_{on}=50nsec, t_{off}=85nsec
2N965	B	—12	150	150	100	t_{on}=50nsec, t_{off}=85nsec
2N966	B	—12	150	150	100	t_{on}=50nsec, t_{off}=100nsec
2N967	B	—12	150	150	100	t_{on}=60nsec, t_{off}=120nsec
2N968	B	—15	200	150	100	t_{on}=75nsec, t_{off}=150nsec
2N1141	A	—35	100	300	100	f_t=1200 mc
2N1142	A	—30	100	300	100	f_t=1000 mc
2N1143	A	—35	100	300	100	f_t=800 mc
2N1646	B	—15	50	150	100	t_{on}=70nsec, t_{off}=100nsec
2N1646USAF	B	—15	50	150	100	t_{on}=70nsec, t_{off}=100nsec
2N1853/18	B	—18	100	150	100	t_{on}=0.8 μsec, t_{off}=0.9 μsec
2N2455	B	—15	200	150	100	t_{on}=30nsec, t_{off}=65nsec, f_t=600 mc
2N2456	B	—15	200	150	100	t_{on}=15nsec, t_{off}=65nsec, f_t=1000 mc
2N2860	B	—18	150	150	100	t_r=40nsec, t_{stg}=120nsec
2N2928	B	—15	100	150	100	f_t=400 mc

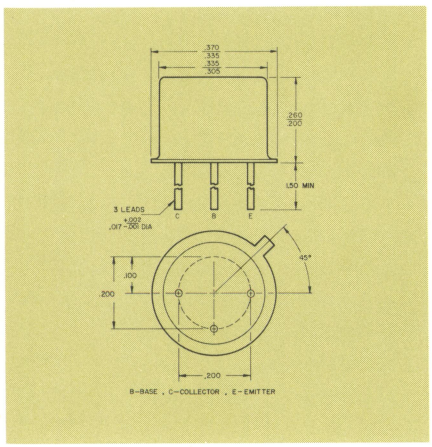
PNPN SILICON EPITAXIAL PLANAR SWITCHES

Absolute Maximum Ratings (25°C)

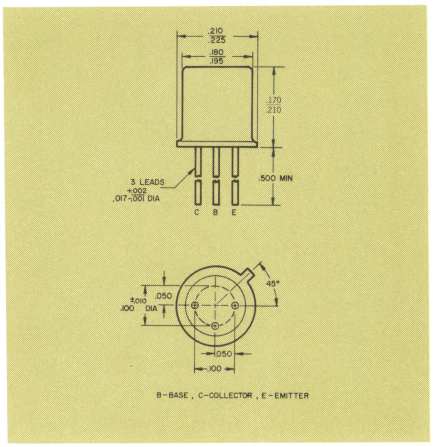
Type No.	Outline Pg. 14	V_{AKR} Volts	V_{KGO} Volts	I_a ma	P_t mw	I_H ma max	GENERAL CHARACTERISTICS
SYL4224	C	60	5.5	250	360	1.0	t_{on}=70nsec
SYL4225	C	30	5.5	250	360	1.0	t_{on}=70nsec
SYL4312	C	15	5.5	250	360	2.5	t_{on}=0.1nsec max t_{off}=2.0nsec max

TRANSISTOR OUTLINE DRAWINGS

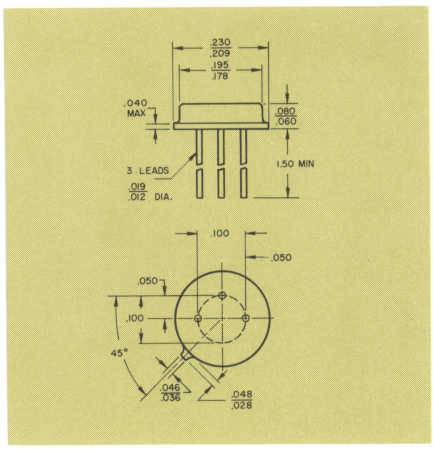
TO-5 A



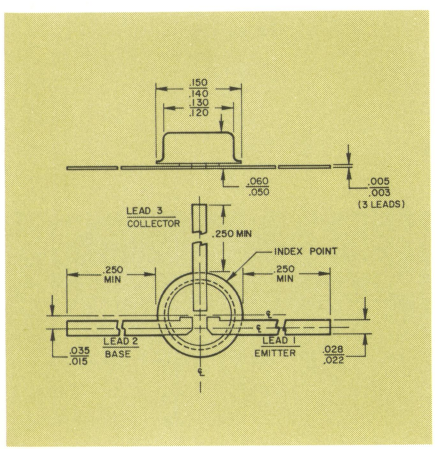
TO-18 B



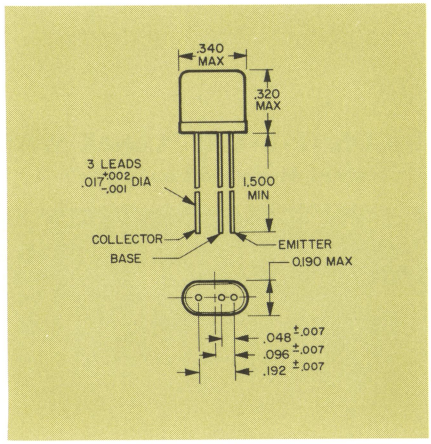
TO-46 C

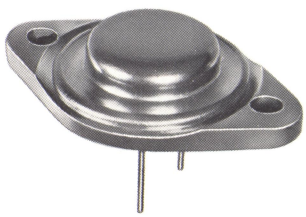


TO-51 D

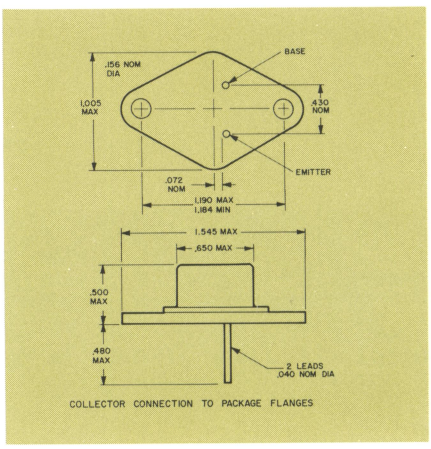


TO-22 E

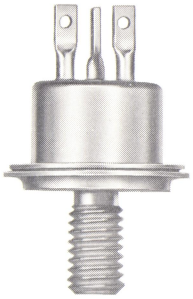




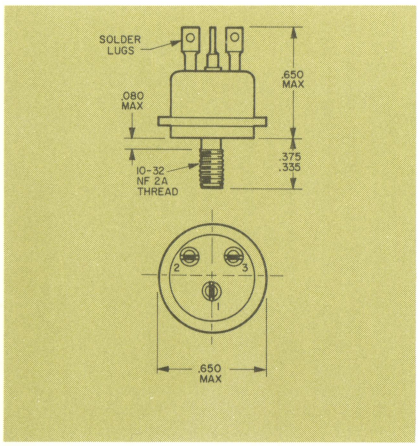
TO-3 F

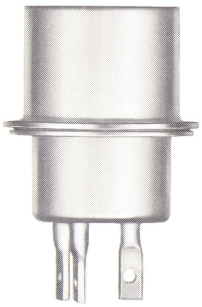


TRANSISTOR OUTLINE DRAWINGS

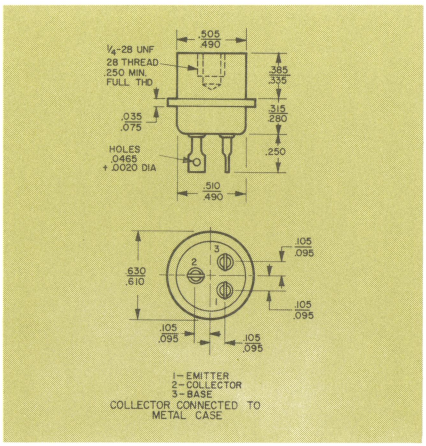


TO-10 G

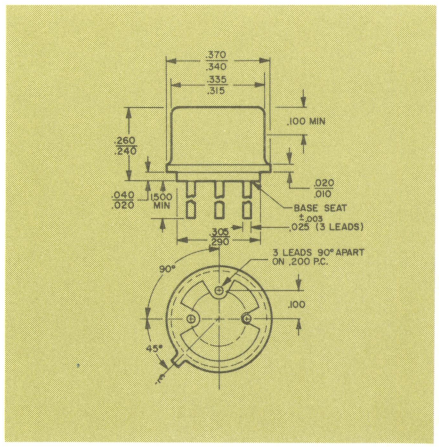




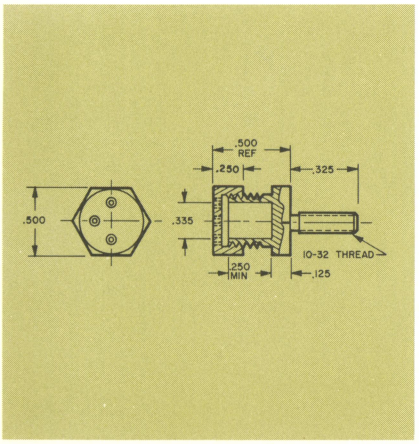
TO-13 H

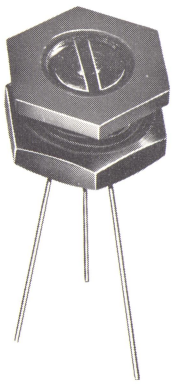


TO-5 (MODIFIED) I



J





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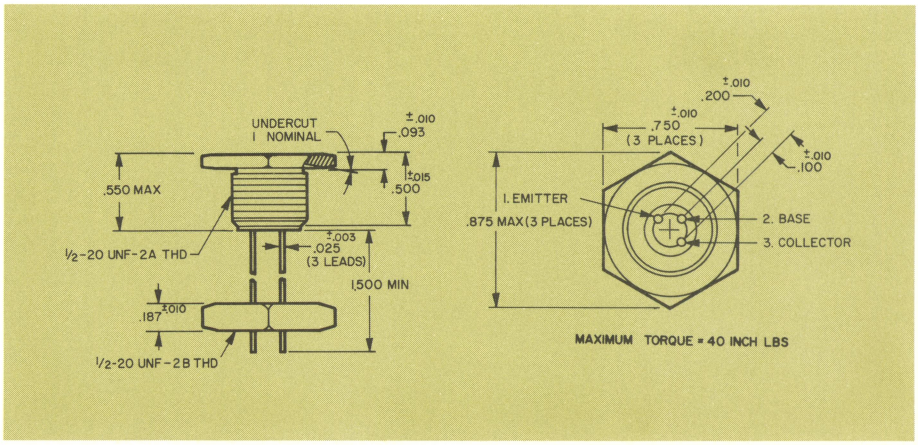


INTEGRATED CIRCUITS

The successful development of Sylvania's Integrated Circuits and their excellent performance are the result of a philosophy whose firm objective is based on the anticipated needs of the user and employing a fundamental approach to investigate and determine how these needs may be accomplished.

Each component in the circuit —input multiple emitter transistors, switching transistors, driving transistors, diodes and resistors—is carefully designed for optimum performance in the specific place in the circuit in which they function. Therefore, each component is custom designed—resulting in designs which in many cases are dramatically different then discrete broad use component designs.

Sylvania's Integrated Circuits incorporate the industry's most advanced state of the art, combining such techniques as precision mask-making, multi-layer epitaxy, planar diffusion and photolithographic processing. All Sylvania Semiconductor Silicon Integrated Circuits are Planar, Epitaxial and Monolithic. Planar provides the ultimate in reliability. Epitaxial provides low saturation voltages, very low isolation capacitance and high speed. Monolithic provides a circuit all on one chip with no bonded interconnections within the circuit.

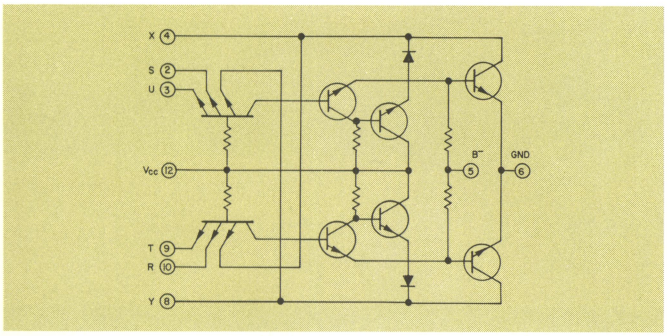
SYLVANIA UNIVERSAL HIGH LEVEL LOGIC (SUHL)

Type No.	Logic Function	Outline Pg. 19	Power Supply Volts	Clock Rate mc	Fan In	Fan Out
SNG-4	Dual NAND Gate	B	+5, −4	20	3 dual	20 dual
SNG-4/F	Dual NAND Gate	C	+5, −4	20	3 dual	20 dual
SNG-4A[1]	Dual NAND Gate	B	+5	20	3 dual	20 dual
SNG-4B[1]	Dual NAND Gate	B	+5	20	4 dual	20 dual
SNG-4A/F[1]	Dual NAND Gate	C	+5	20	3 dual	20 dual
SNG-4B/F[1]	Dual NAND Gate	C	+5	20	4 dual	20 dual
SNG-5	Dual NAND OR Gate	B	+5, −4	20	3 dual	20
SNG-5/F	Dual NAND OR Gate	C	+5, −4	20	3 dual	20
SNG-5A[1]	Dual NAND OR Gate	B	+5	20	3 dual	20
SNG-5B[1]	Dual NAND OR Gate	B	+5	20	4 dual	20
SNG-5A/F[1]	Dual NAND OR Gate	C	+5	20	3 dual	20
SNG-5B/F[1]	Dual NAND OR Gate	C	+5	20	4 dual	20
SNG-6	NAND Gate	B	+5, −4	20	6	20
SNG-6/F	NAND Gate	C	+5, −4	20	6	20
SNG-6A[1]	NAND Gate	B	+5	20	6	20
SNG-6B[1]	NAND Gate	B	+5	20	8	20
SNG-6A/F[1]	NAND Gate	C	+5	20	6	20
SNG-6B/F[1]	NAND Gate	C	+5	20	8	20
SFF-1	Flip Flop R-S	B	+5, −4	20	–	20
SFF-1/F	Flip Flop R-S	C	+5, −4	20	–	20
SFF-2	Flip Flop R-S-T	B	+5, −4	20	–	20
SFF-2/F	Flip Flop R-S-T	C	+5, −4	20	–	20
SFF-2A[1]	Flip Flop R-S-T	B	+5	20	–	20
SFF-2A/F[1]	Flip Flop R-S-T	C	+5	20	–	20
SFF-3A[1]	Flip Flop Single Phase	B	+5	20	–	20
SFF-3A/F[1]	Flip Flop Single Phase	C	+5	20	–	20

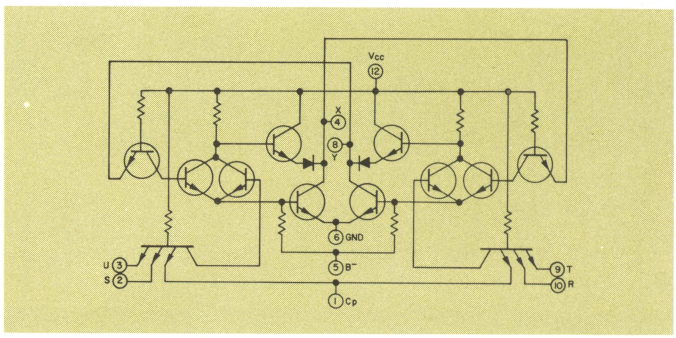
CIRCUIT DIAGRAMS

SUHL

SFF-1



SFF-2



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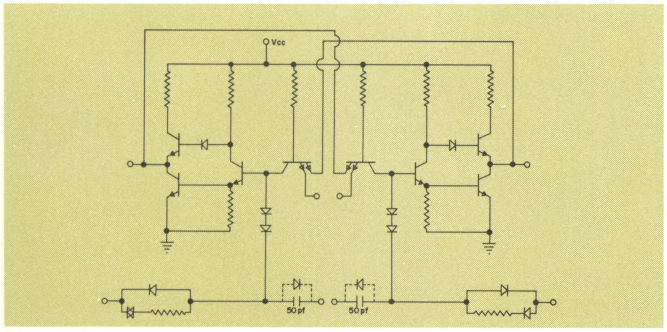
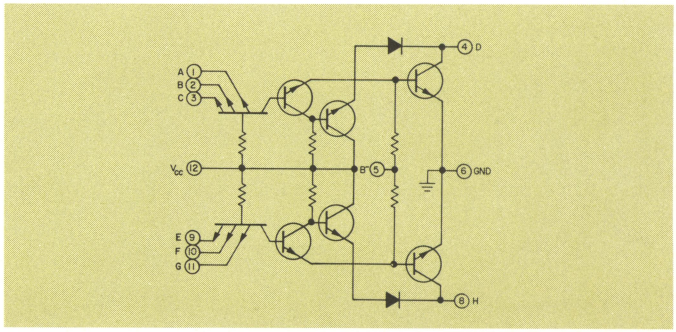
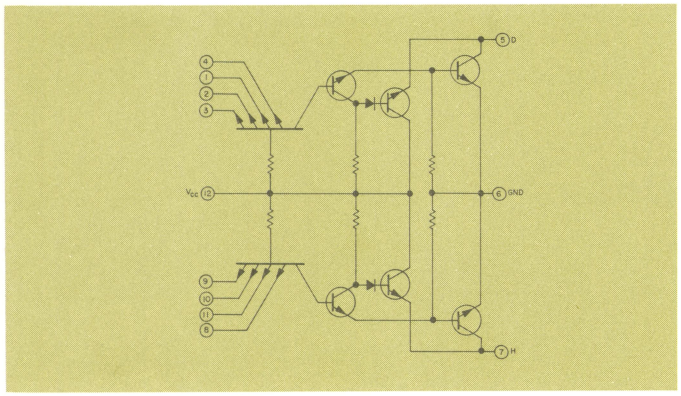


SNG-4



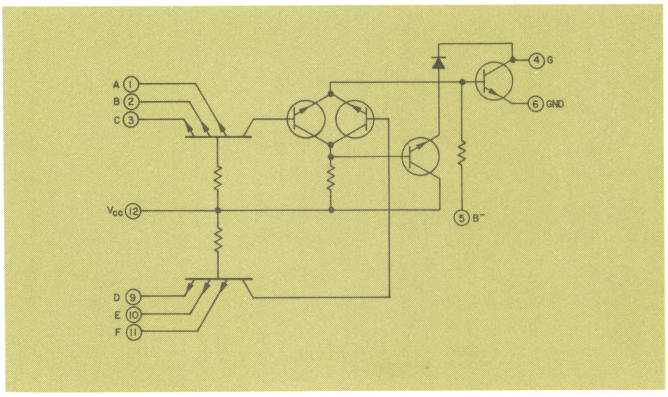
CIRCUIT DIAGRAMS *continued*

SNG-4A & B

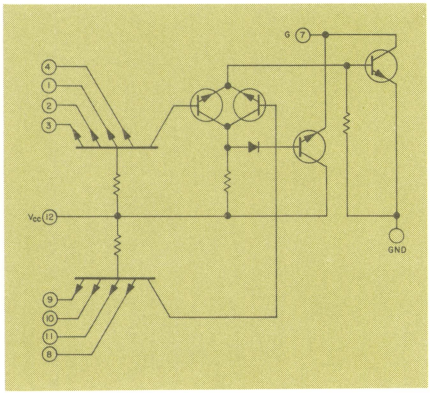


SUHL

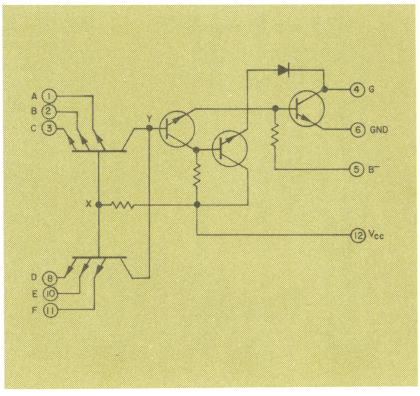
SNG-5



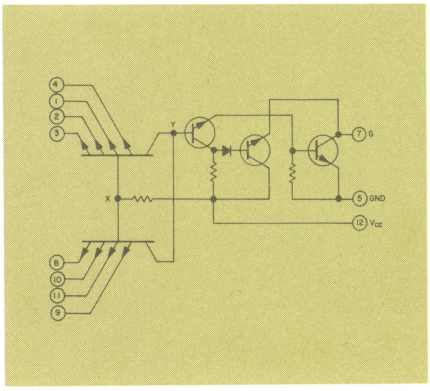
SNG-5A & B



SNG-6



SNG-6A & B



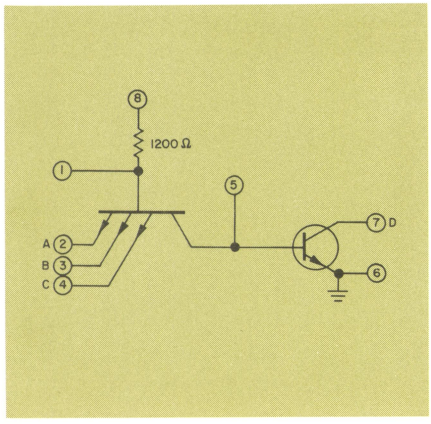
*Pin numbers shown on schematics are for outlines A or B only.

TRANSISTOR-TRANSISTOR LOGIC (T^2L)

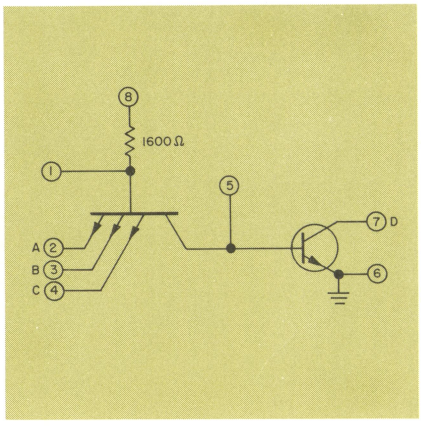
Type No.	Description	Outline Pg. 19	Power Supply volts	Clock Rate mc	Fan In	Fan Out
SNG-2	NAND Gate	A	3 to 5	20	3	5
SNG-3	NAND Gate	A	3 to 5	20	3	5
SNG-7	Dual NAND Gate	B	2.5 to 5	20	4 dual	5 dual
SNG-7/F	Dual NAND Gate	C	2.5 to 5	20	4 dual	5 dual

CIRCUIT DIAGRAMS (T^2L)

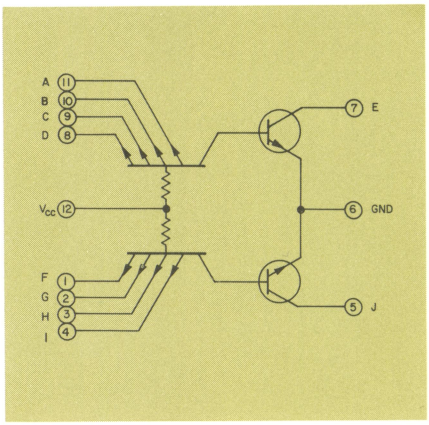
SNG-2



SNG-3



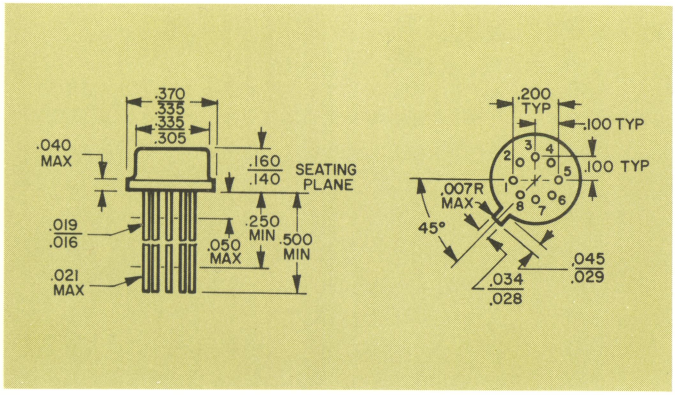
SNG-7



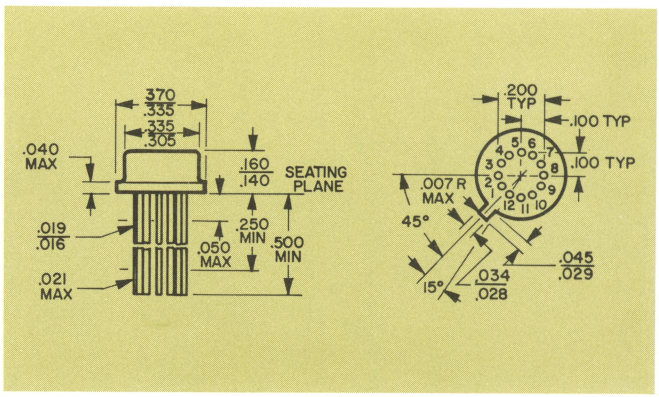
*Pin numbers shown on schematics are for outlines A or B only.

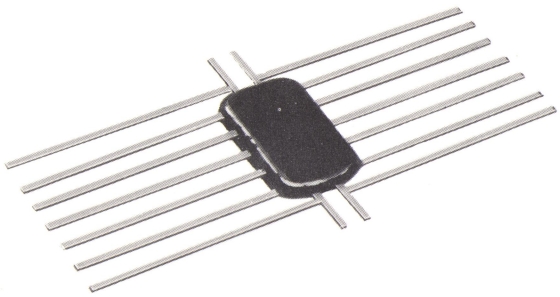
INTEGRATED CIRCUIT OUTLINE DRAWINGS

A

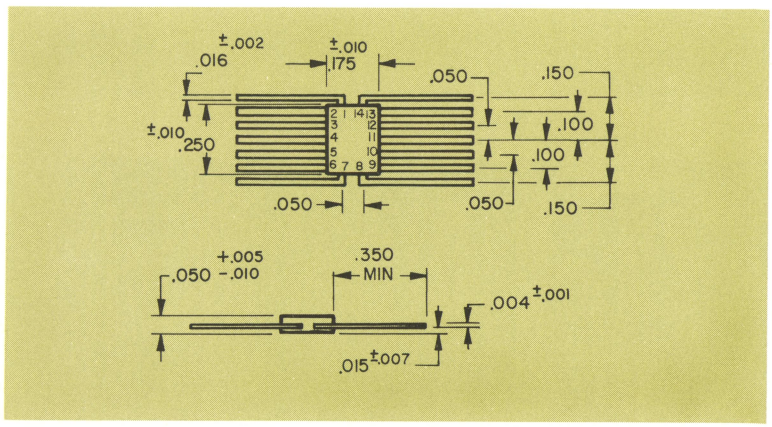


B





C



SILICON PLANAR EPITAXIAL INTEGRATED DIODES

Type No.	Outline Pg. 22	Circuit Config. Pg. 21	No. Of Diodes	Peak Reverse Voltage Volts	Max. F'wd Current ma	F'wd Current @ I.OV ma	Recovery Time t_{rr} nsec	Capacitance 0 Volts–1 mc
M0001	A	1	2	40	225	100	3.0	4.5
M0002	B	3	3	40	225	100	3.0	4.5
M0003	A	1	2	75	200	75	3.0	3.5
M0004	B	3	3	75	200	75	3.0	3.5
M0005	A	1	2	100	175	50	3.0	2.5
M0006	B	3	3	100	175	50	3.0	2.5
M0007	A	1	2	40	175	20	4.0	4.5
M0008	B	3	3	40	175	20	4.0	4.5
M0009	C	5	4	40	175	20	4.0	4.5
M0010	C	5	4	40	225	100	3.0	4.5
M0011	C	5	4	75	200	75	3.0	3.5
M0012	C	5	4	100	175	50	3.0	2.5
M0027	B	7	2	20	10	.5	–	–
M0045	A	1	2	100	225	100	3.0	2.5
M0046	B	3	3	100	225	100	3.0	2.5
M0047	C	5	4	100	225	100	3.0	2.5
M0058	C	8	4	100	50	–	4.0	2.0
M0059	C	5	4	40	175	50	6.0	4.0
M0060	C	5	4	40	225	200	6.0	6.0
M0061	C	15	4	15	175	175	4.0	4.0
M0062	C	6	4	40	225	200	6.0	6.0
M0063	C	10	4	15	175	40	4.0	4.0
M0082[1]	C	6	4	30	50	4.0	500	–
M0083	C	5	4	30	50	4.0	500	–
M0090	B	16	4	30	50	10	4.0	4.0
M0092	C	5	4	12	100	20	–	6.0
M0101[1]	A	2	2	40	175	20	4.0	5.0
M0102[1]	B	4	3	40	175	20	4.0	5.0
M0103[1]	C	6	4	40	175	20	4.0	5.0
M0104[1]	A	2	2	75	200	75	3.0	4.5
M0105[1]	B	4	3	75	200	75	3.0	4.5
M0106[1]	C	6	4	75	200	75	3.0	4.5
M0107[1]	A	2	2	40	225	100	3.0	5.0
M0108[1]	B	4	3	40	225	100	3.0	5.0
M0109[1]	C	5	4	40	225	100	3.0	5.0
M0110	E	17	8	40	175	30	4.0	4.5
M0111[1]	E	18	8	40	175	30	4.0	5.0
M0127	A	9	2	45	–	50	3	4.5
M0128	C	11	4	45	–	40	4	4.5
M0129	C	12	5	45	–	50	4	4.5
M0130	C	13	5	45	–	50	4	4.5

[1]–*Common anode type*

INTEGRATED STEERING DIODES

Type No.	Outline Pg. 22	Circuit Config. Pg. 21	No. of Diodes	Peak Reverse Voltage Volts	F'wd Current @ 1.1v ma	Capacitance 0 Volts–1 mc
M0112	D	5	4	60	300	10.0
M0113	D	19	5	60	300	10.0
M0114[1]	D	6	4	60	300	12.0
M0115[1]	D	20	5	60	300	12.0

[1]–*Common anode type*

DIODE BRIDGE

Type No.	Outline Pg. 22	Circuit Config. Pg. 21	No. of Diodes	F'wd Current @ 1.0 Volt ma	Peak Reverse Voltage V	Matching F'wd Current @ 2 ma mv
M0119	B	15	4	30	50	–
M0120	B	15	4	50	75	20

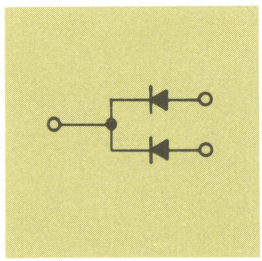
RING MODULATOR

Type No.	Outline Pg. 22	Circuit Config. Pg. 21	No. of Diodes	F'wd Current @ 1.0 Volt ma	Matching F'wd Current @ 2 ma mv
M0094	B	14	4	50	20

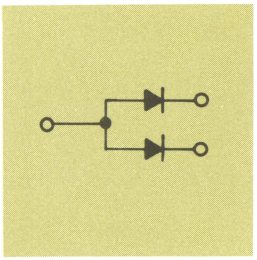
BASIC DIODE CIRCUIT CONFIGURATIONS

ANY COMBINATION OF THE BELOW 20 CIRCUITS ALSO AVAILABLE IN TO-5 PACKAGES

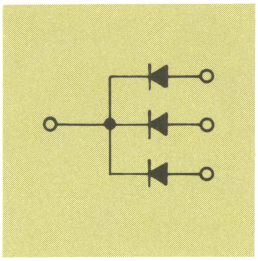
1. M0001, 3, 5, 7 & 45



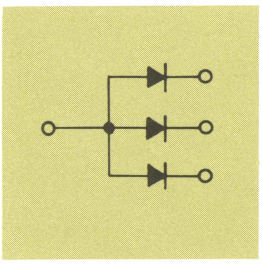
2. M0101, 104 & 107



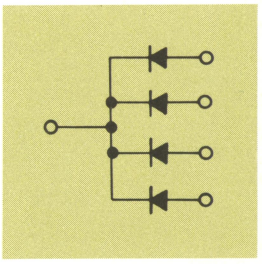
3. M0002, 4, 6, 8 & 46



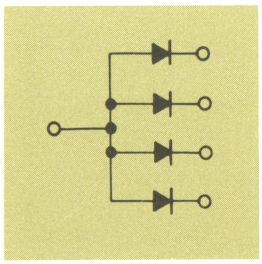
4. M0102, 105 & 108



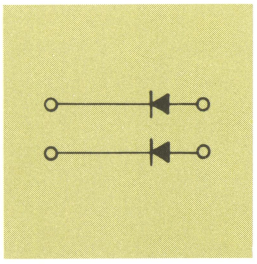
5. M0009, 10, 11, 12, 47, 59, 60, 83, 92 & 112



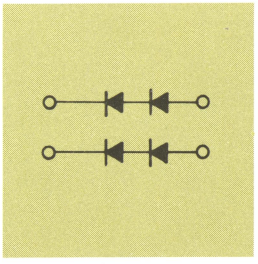
6. M0062, 82,103, 106, 109, & 114



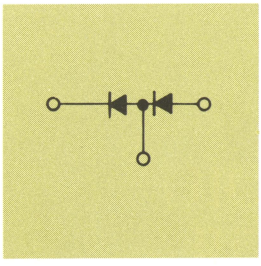
7. M0027



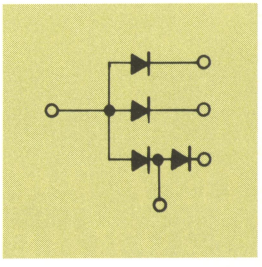
8. M0058



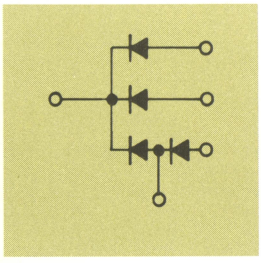
9. M0127



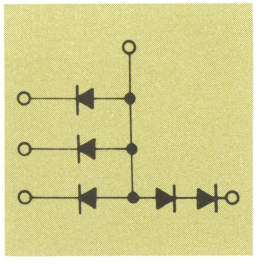
10. M0063



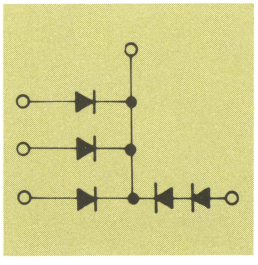
11. M0128



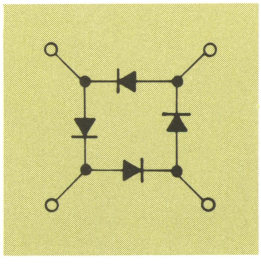
12. M0129



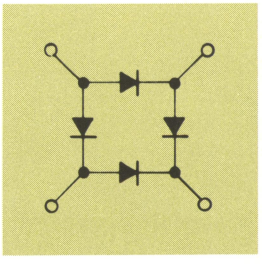
13. M0130



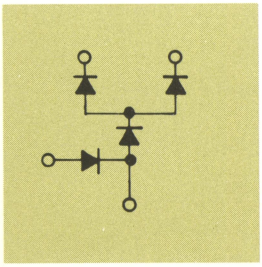
14. M0094



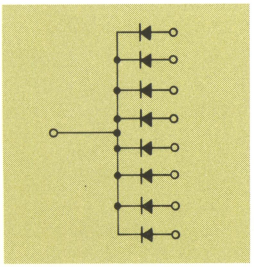
15. M0061, 119 & 120



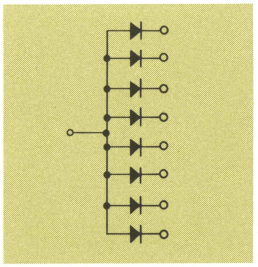
16. M0090



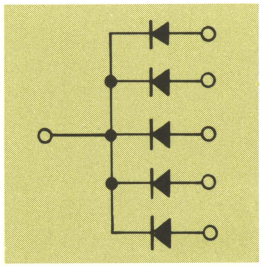
17. M0110



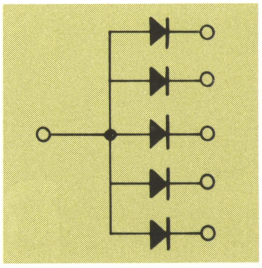
18. M0111



19. M0113

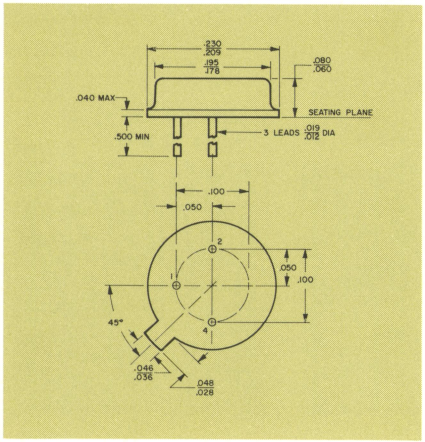


20. M0115

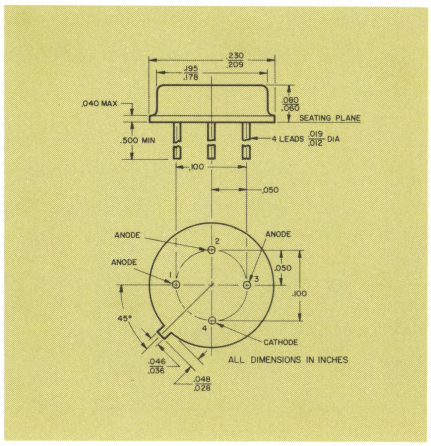


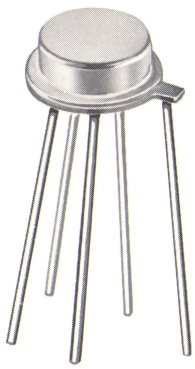
INTEGRATED DIODE OUTLINE DRAWINGS

A 3 LEAD TO-46

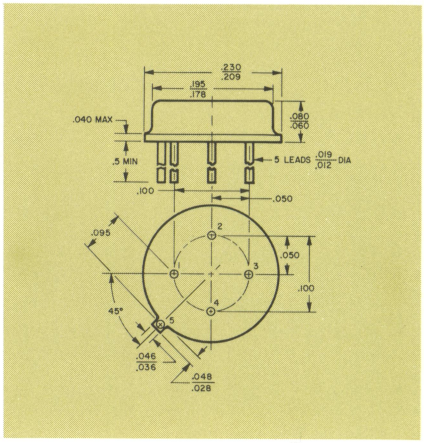


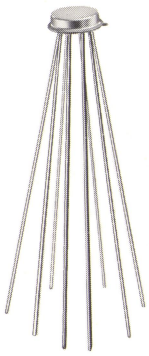
B 4 LEAD TO-46



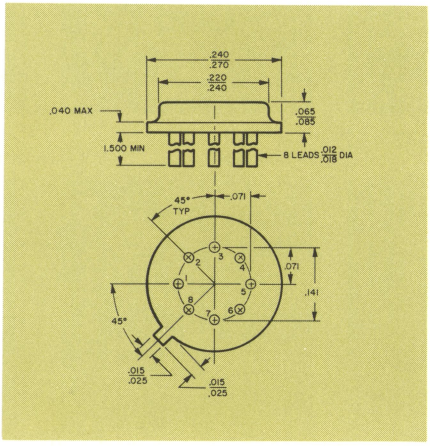


C 5 LEAD TO-46

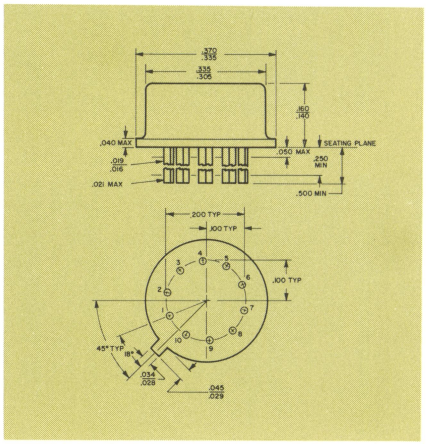




D 8 LEAD TO-47



E 10 LEAD TO-5



DIODES AND RECTIFIERS

From incoming inspection of raw materials to final customer acceptance of finished product Sylvania's precisioned-honed manufacturing techniques of silicon and germanium diodes is your assurance of parameter uniformity and lot-to-lot and in-lot reliability. Producer of the industries first commercial diode, Sylvania offers the circuit design engineer a vast range of types in the popular all glass package... Result—more miniaturized circuit design opportunities in a wide choice of silicon and germanium designs.

SILICON JUNCTION DIODES

Absolute Maximum Ratings at (25°C)

Type No.	Description	Outline Pg. 30	Temperature Range °C	Power Dissipation	Peak Reverse Voltage (volts)	Reverse Working Voltage (dc-volts)
1N456-1N464 Series. This is a family of general purpose alloy junction devices with power ratings to 500 mw and temperature ranges from −80° to +200°C.						
1N456		A	−80 to +200	200mw	30	25
1N456A	High Conduction	A	−80 to +200	500mw (250mw at 150°C)	30	25
1N457		A	−80 to +200	200mw	70	60
‡JAN1N457		A	−80 to +200	200mw	70	60
1N457A	High Conduction	A	−80 to +200	500mw (250mw at 150°C)	70	60
1N458		A	−80 to +200	200mw	150	125
‡JAN1N458		A	−80 to +200	200mw	150	125
1N458A	High Conduction	A	−80 to +200	500mw (250mw at 150°C)	150	125
1N459		A	−80 to +200	200mw	200	175
‡JAN1N459		A	−80 to +200	200mw	200	175
1N459A	High Conduction	A	−80 to +200	500mw (250mw at 150°C)	200	175
1N461		A	−80 to +200	200mw	30	25
1N461A	High Conduction	A	−80 to +200	500mw (250mw at 150°C)	30	25
1N462		A	−80 to +200	200mw	70	60
1N462A	High Conduction	A	−80 to +200	500mw (250mw at 150°C)	70	60
1N463		A	−80 to +200	200mw	200	175
1N463A	High Conduction	A	−80 to +200	500mw (250mw at 150°C)	200	175
1N464		A	−80 to +200	200mw	150	125
1N464A	High Conduction	A	−80 to +200	500mw (250mw at 150°C)	150	125
1N482-11N488 Series. These low leakage, general purpose devices have power ratings to 250 mw and temperature ranges from −65°C to +200°C.						
1N482	High Conduction	A	−65 to +200	250mw	40	36
1N482A	High Conduction Low Leakage	A	−65 to +200	250mw	40	36
1N482B	Very Low Leakage	A	−65 to +200	250mw	40	36
1N483		A	−65 to +200	250mw	80	70
1N483A	High Conduction Low Leakage	A	−65 to +200	250mw	80	70
1N483B	Very Low Leakage	A	−65 to +200	250mw	80	70
1N484		A	−65 to +200	250mw	150	130
1N484A	High Conduction Low Leakage	A	−65 to +200	250mw	150	130
1N484B	Very Low Leakage	A	−65 to +200	250mw	150	130
‡USN1N483B	Very Low Leakage	A	−65 to +200	250mw	80	70
1N485		A	−65 to +200	250mw	200	180
1N485A	High Conduction Low Leakage	A	−65 to +200	250mw	200	180
1N485B	Very Low Leakage	A	−65 to +200	250mw	250	225
1N486A	High Conduction Low Leakage	A	−65 to +200	250mw	250	225
1N486B	Very Low Leakage	A	−65 to +200	250mw	250	225
1N487		A	−65 to +200	250mw	330	300
1N487A	High Conduction Low Leakage	A	−65 to +200	250mw	330	300
1N487B	Very Low Leakage	A	−65 to +200	250mw	330	300
1N488		A	−65 to +200	250mw	420	380
1N488A	High Conduction Low Leakage	A	−65 to +200	250mw	420	380
1N488B	Very Low Leakage	A	−65 to +200	250mw	420	320
1N625-1N663 Series. These devices are low leakage high speed computer switches with power ratings to 200 mw and temperature ranges from −80°C to +150°C.						
1N625	Fast Recovery (1μsec)	A	−80 to +150	200mw	–	30
1N626	Fast Recovery (1μsec)	A	−80 to +150	200mw	–	50
1N627	Fast Recovery (1μsec)	A	−80 to +150	200mw	–	100
1N628	Fast Recovery (1μsec)	A	−80 to +150	200mw	–	150
1N629	Fast Recovery (1μsec)	A	−80 to +150	200mw	–	200
1N643A	Fast Recovery (.3μsec)	A	−65 to +200	200mw	200	175
1N658	Fast Recovery (.3μsec)	A	−65 to +175	200mw	120	100
1N659	Fast Recovery (.3μsec)	A	−65 to +150	200mw	–	50
1N661	Fast Recovery (.3μsec)	A	−65 to +150	200mw	240	200
1N662	Fast Recovery (.5μsec)	A	−65 to +150	200mw	80	50
‡USA1N662	Fast Recovery (.5μsec)	A	−65 to +150	200mw	80	50
1N663	Fast Recovery (.5μsec)	A	−65 to +150	200mw	80	75
‡USA1N663	Fast Recovery (.5μsec)	A	−65 to +150	200mw	80	75
1N816	Low Voltage Regulator	A	−65 to +150	150mw	6	500
1N816W	Low Voltage Regulator	A	−65 to +150	150mw	6	500

SILICON JUNCTION DIODES

Absolute Maximum Ratings at (25°C)

Recurrent Peak Current (ma)	Average Rectified Current (ma)	Surge Current (ma)	ELECTRICAL CHARACTERISTICS AT 25°C		
			Forward Current at +1 volt (ma min.)	Reverse Current (μa max.)	High Temp. Reverse Current (μa max. at 150°C)
270	90	1200	40	.025 at −25v	5 at −25v
–	200 (70 at 150°C)	1500 (1.0 A at 150°C)	100	.025 at −25v	5 at −25v
225	75	1000	20	.025 at −60v	5 at −60v
225	75	600	20	.025 at −60v	5 at −60v
–	200 (70 at 150°C)	1500 (1.0 A at 150°C)	100	.025 at −60v	5 at −60v
165	55	800	7	.025 at −125v	5 at −125v
165	55	500	7	.025 at −125v	5 at −125v
–	200 (70 at 150°C)	1500 (1.0 A at 150°C)	100	.025 at −125v	5 at −125v
120	40	400	3	.025 at −175v	5 at −175v
120	40	400	3	.025 at −175v	5 at −175v
–	200 (70 at 150°C)	1500 (1.0 A at 150°C)	100	.025 at −175v	5 at −175v
180	60	900	15	.5 at −25v	30 at −25v
–	200 (70 at 150°C)	1500 (1.0 A at 150°C)	100	.5 at −25v	30 at −25v
150	50	800	5	.5 at −60v	30 at −60v
–	200 (70 at 150°C)	1500 (1.0 A at 150°C)	100	.5 at −60v	30 at −60v
100	30	700	1	.5 at −175v	30 at −175v
–	200 (70 at 150°C)	1500 (1.0 A at 150°C)	100	.5 at −175v	30 at −175v
120	40	700	3	.5 at −125v	30 at −125v
–	200 (70 at 150°C)	1500 (1.0 A at 150°C)	100	.5 at −125v	30 at −125v
400	100 (25 at 150°C)	1A	100 at 1.1v	.25 at −30v	30 at −30v
650	200 (50 at 150°C)	2A	100	.025 at −30v	15 at −30v
650	200 (50 at 150°C)	2A	100	.025 at −30v	5 at −30v
400	100 (25 at 150°C)	1A	100 at 1.1v	.25 at −60v	30 at −60v
650	200 (50 at 150°C)	2A	100	.025 at −60v	15 at −60v
650	200 (50 at 150°C)	2A	100	.025 at −60v	5 at −60v
400	100 (25 at 150°C)	1A	100 at 1.1v	.25 at −125v	30 at −125v
150	200 (50 at 150°C)	2A	100	.025 at −125v	15 at −125v
650	200 (50 at 150°C)	2A	100	.025 at −125v	5 at −125v
–	100 (25 at 150°C)	1A	100 at 1v	.025 at −60v	5 at −60v
400	200 (50 at 150°C)	2A	100	.025 at −175v	30 at −175v
650	200 (20 at 150°C)	2A	100	.025 at −175v	15 at −175v
400	100 (25 at 150°C)	1A	100 at 1v	.025 at −175v	5 at −175v
650	200 (50 at 150°C)	2A	100	.05 at −225v	25 at −225v
650	200 (50 at 150°C)	2A	100	.05 at −225v	10 at −225v
400	100 (25 at 150°C)	1A	100 at 1.1v	.25 at −300v	50 at −300v
650	200 (50 at 150°C)	2A	100	.1 at −300v	25 at −300v
650	200 (50 at 150°C)	2A	100	.1 at −300v	25 at −300v
400	100 (25 at 150°C)	1A	100 at 1.1v	.25 at −380v	50 at −380v
650	200 (50 at 150°C)	2A	100	.1 at −380v	25 at −380v
650	200 (50 at 150°C)	2A	100	.1 at −380v	25 at −380v
–	200 (50 at 150°C)	–	4 at 1.5v	1.0 at −30v	30 at −20v (100°C)
–	20 (5 at 150°C)	–	4 at 1.5v	1.0 at −35v	30 at −35v (100°C)
–	20 (5 at 100°C)	–	4 at 1.5v	1.0 at −75v	30 at −75v (100°C)
–	20 (5 at 100°C)	–	4 at 1.5v	1.0 at −125v	30 at −125v (100°C)
–	20 (5 at 100°C)	–	4 at 1.5v	1.0 at −175v	30 at −175v (100°C)
500	40	1A	100	1.0 at −100v	15 at −100v (100°C)
630	200	1A	100	.05 at −50v	25 at −50v (150°C)
320	100		6	.05 at −60v	25 at −50 (100°C)
320	100 (30 at 150°C)	–	6	10 at −200v	100 at −200v (100°C)
125	40	500	10	1.0 at −10v	20 at −10v (100°C)
125	40	500	10	1.0 at −10v	20 at −10v (100°C)
190	60	500	100	5.0 at −75v	50 at −75v (100°C)
190	60	500	100	5.0 at −75v	50 at −75v (100°C)
–	150	500	100	.1 at −6v	–
–	150	500	100	.1 at −6v	–

‡*Available to applicable military specifications*

HIGH SPEED SILICON EPITAXIAL PLANAR DIODES

Absolute Maximum Ratings at (25°C)

Type No.	Description	Out-line Pg. 30	Temp. Range °C	Reverse Peak Voltage	Average Forward Current (ma)	Surge Current 1 Sec. (ma)	Power Diss. (mw)	Forward Current At +1 Volt (ma min)	CHARACTERISTICS Reverse Current (mμa max)	CHARACTERISTICS Capacitance at 100 kc μμf (max)
1N251	Low Leakage Computer (150 nsec)	A	−65°C to +150°C	40	40	125	–	5	−20 at −20v	–
1N252	Low Leakage Computer (150 nsec)	A	−65°C to +150°C	40	40	150	–	10	−20 at −12v	–
1N903	Fast recovery (4 mus)	A	−65°C to +150°C	40	50	100	125	10	100 at −40v	1.0(Vr=6v)
1N903A	Fast recovery (4 mus)	A	−65°C to +150°C	40	50	100	125	20	100 at −40v	1.0(Vr=6v)
1N904	Fast recovery (4 mus)	A	−65°C to +150°C	30	50	100	125	10	100 at −30v	1.0(Vr=6v)
1N904A	Fast recovery (4 mus)	A	−65°C to +150°C	30	50	100	125	20	100 at −30v	1.0(Vr=6v)
1N905	Fast recovery (4 mus)	A	−65°C to +150°C	20	50	100	125	10	100 at −20v	1.0(Vr=6v)
1N905A	Fast recovery (4 mus)	A	−65°C to +150°C	20	50	100	125	20	100 at −20v	1.0(Vr=6v)
1N906	Fast recovery (4 mus)	A	−65°C to +150°C	20	50	100	125	10	100 at −20v	2.5(Vr=6v)
1N906A	Fast recovery (4 mus)	A	−65°C to +150°C	20	50	100	125	20	100 at −20v	2.5(Vr=6v)
1N907	Fast recovery (4 mus)	A	−65°C to +150°C	30	50	100	125	10	100 at −30v	2.5(Vr=6v)
1N907A	Fast recovery (4 mus)	A	−65°C to +200°C	30	75	500	250	20	100 at −30v	2.5(Vr=6v)
1N908	Fast recovery (4 mus)	A	−65°C to +150°C	40	50	100	125	10	100 at −40v	2.5(Vr=6v)
1N908A	Fast recovery (4 mus)	A	−65°C to +200°C	40	50	500	250	20	100 at −40v	2.5(Vr=6v)
1N914	Fast recovery (4 mus)	A	−65°C to +150°C	100	75	500	250	10	25 at −20v	4.0(Vr=0)
1N914A	Fast recovery (4 mus)	A	−65°C to +150°C	100	75	500	250	20	25 at −20v	4.0(Vr=0)
1N914B	Fast recovery (4 mus)	A	−65°C to +150°C	100	75	500	250	100	25 at −20v	4.0(Vr=0)
1N914 JAN	Fast recovery (5 mus)	A	−65°C to +175°C	100	75	500	250	10	25 at −20v	4.0(Vr=0)
1N916	Fast recovery (4 mus)	A	−65°C to +150°C	100	75	500	250	10	25 at −20v	2.0(Vr=0)
1N916A	Fast recovery (4 mus)	A	−65°C to +150°C	100	75	500	250	20	25 at −20v	2.0(Vr=0)
1N916B	Fast recovery (4 mus)	A	−65°C to +150°C	100	75	500	250	30	25 at −20v	2.0(Vr=0)
1N3731	Fast recovery (3 nsec)	A	−65°C to +175°C	100	200	500	400	100	550 at −50v	2.0(Vr=0) f=1.0mc
1N3064	Fast recovery (4 nsec)	A	−65°C to +175°C	75	75	500	250	10	100 at −50v	2.0(Vr=0)
1N3064 USN	Fast recovery (4 nsec)	A	−65°C to +175°C	75	75	500	250	10	100 at −50v	2.0(Vr=0)
1N3604	Fast recovery (4 nsec)	A	−65°C to +175°C	75	75	115	250	50	50 at −50v	2.0(Vr=0)
1N3605	Fast recovery (4 nsec)	A	−65°C to +200°C	40	50	100	250	50	50 at −30v	2.0(Vr=0)

SILICON BONDED DIODES

Absolute Maximum Ratings at (25°C)

Type No.	Description	Out-line Pg. 30	Temp. Range °C	Reverse Working Voltage (dc-volts)	Recurrent Peak F'wd Current (ma)	Avg. F'wd. Current (ma)	Surge Current 1 Sec. (ma)	Peak Reverse Voltage (volts)	Forward Curr. (ma) at +1 volt	Reverse Current (μamax)
1N997	Low Leakage Computer (150 nsec)	A	−65 to +150	35	125	50	150	40	10	0.025 at −12v

SILICON BULLET RECTIFIERS

Absolute Maximum Ratings at (25°C)

Type No.	Description	Outline Pg. 30	Rms Input Volts	Peak Inverse Volts	Maximum DC Output Current (ma at °C)	(ma at °C)	Temperature Range Operating	Storage
1N2069	750 ma Power Rect. (25°C)	E	140	200	750 ma at 25°C	500 ma at 100°C	−35 to +100°C	−35 to +150°C
1N2070	750 ma Power Rect. (25°C)	E	280	400	750 ma at 25°C	500 ma at 100°C	−35 to +100°C	−35 to +150°C
1N2071	750 ma Power Rect. (25°C)	E	420	600	750 ma at 25°C	500 ma at 100°C	−35 to +100°C	−35 to +150°C
1N2069A	750 ma Power Rect. (25°C) (Very Low Dynamic Leakage)	E	140	200	750 ma at 25°C	500 ma at 100°C	−35 to +100°C	−35 to +150°C
1N2070A	750 ma Power Rect. (25°C) (Very Low Dynamic Leakage)	E	280	400	750 ma at 25°C	500 ma at 100°C	−35 to +100°C	−35 to +150°C
1N2071A	750 ma Power Rect. (25°C) (Very Low Dynamic Leakage)	E	420	600	750 ma at 25°C	500 ma at 100°C	−35 to +100°C	−35 to +150°C
1N2482	750 ma Power Rect. (25°C)	E	140	200	750 ma at 25°C	–	−35 to +100°C	−35 to +150°C
1N2483	750 ma Power Rect. (25°C)	E	280	400	750 ma at 25°C	–	−35 to +100°C	−35 to +150°C
1N2484	750 ma Power Rect. (25°C)	E	420	600	750 ma at 25°C	–	−35 to +100°C	−35 to +150°C
SR200B	200 ma Power Rect. (25°C)	E	210	300	500 ma at 25°C	–	−35 to +100°C	−35 to +150°C
SR500B	500 ma (Power Rect. (25°C)	E	280	400	500 ma at 25°C	–	−35 to +100°C	−35 to +150°C
SR1692	600 ma Power Rect. (25°C/50°C) 250 ma Power Rect. (100°C)	E	70	100	600 ma at 50°C	250 ma at 100°C	−35 to +100°C	−35 to +150°C
SR1693	600 ma Power Rect. (25°C/50°C) 250 ma Power Rect. (100°C)	E	140	200	600 ma at 50°C	250 ma at 100°C	−35 to +100°C	−35 to +150°C
SR1694	600 ma Power Rect. (25°C/50°C) 250 ma Power Rect. (100°C)	E	210	300	600 ma at 50°C	250 ma at 100°C	−35 to +100°C	−35 to +150°C
SR1695	600 ma Power Rect. (25°C/50°C) 250 ma Power Rect. (100°C)	E	250	400	600 ma at 50°C	250 ma at 100°C	−35 to +100°C	−35 to +150°C

GERMANIUM POINT CONTACT DIODES

Absolute Maximum Ratings at (25°C)

Type No.	Description	Outline Pg. 30	Temp. Range °C	Reverse Working Voltage (dc-volts)	Recurrent Peak Forward Current (ma)	Avg. Forward Current (ma)	Surge Current 1 sec- (ma)	Peak Reverse Voltage (volts)	Characteristics Forward Current at ± 1 volt Min.	Max.	Reverse Current (μa max)
1N34A	General Purpose	B*	−50 to +90	60	150	50	500	75	5	25	480 at −50v
1N35	Matched Pair	D	−50 to +75	50	60	22.5	100	75	7.5	25	10 at −10v
1N38A	100 Volt Diode	B*	−50 to +90	100	150	50	500	120	4	25	500 at −100v
‡1N38B	100 Volt Diode	B*	−50 to +90	100	150	50	500	125	4	25	500 at −100v
1N39B	200 Volt High Back	B	−50 to +90	200	150	50	500	220	4	25	600 at −200v
1N40	Varistor (4 units)	C1	−50 to +75	25	60	22.5	100	75	12.7	(at +1.5v)	35 at −10v
1N52A	50 Volt Diode	B	−50 to +75	50	150	50	400	85	5	25	100 at −50v
1N54A	High Back Res.	B*	−50 to +90	50	150	50	500	75	5	25	100 at −50v
‡1N55A	150 Volt Diode	B*	−50 to +90	150	150	50	500	170	4	25	500 at −150v
1N56A	High Forward	B	−50 to +90	40	200	60	1000	50	15	–	300 at −30v
1N58A	100 Volt Diode	B*	−50 to +90	100	150	50	500	120	4	25	600 at −100v
1N60	Video Detector	B*	−50 to +90	25	150	50	500	30	–	–	– – –
1N63	High Back Res.	B*	−50 to +90	100	150	50	500	125	4	25	50 at −50v
1N65	70 Volt Diode	B*	−55 to +90	70	150	50	500	85	2.5	25	200 at −50v
1N67A	80 Volt Diode	A	−55 to +90	80	90	30	300	100	4	25	50 at −50v
1N68A	100 Volt Diode	A	−78 to +90	100	90	40	350	125	3	25	625 at −100v
‡1N69A	60 Volt Diode	B	−55 to +90	60	125	40	400	75	5	25	500 at −50v
‡1N70A	100 Volt Diode	B	−55 to +90	100	90	30	350	125	3	25	300 at −50v
1N71	Varistor (4 units)	C2	−50 to +75	40	200	60	1000	50	1.5	–	300 at −30v
‡1N81A[1]	40 Volt Diode	B	−55 to +90	40	90	30	350	55	3	25	10 at −10v
1N82[1]	Silicon UHF Mixer	B**	−50 to +100	3	25	–	–	5	5	20(.5v)	3000 at −3v
‡1N82A[1]	Silicon UHF Mixer	B**	−50 to +100	3	25	–	–	5	10	20(.5v)	3000 at −3v
1N90	60 Volt Diode	A	−55 to +90	60	90	30	300	75	5	25	500 at −50v
1N115	60 Volt Computer	B	−50 to +90	60	150	25	500	70	2.5	–	500 at −50v
1N116	60 Volt Diode	A	−65 to +90	60	150	45	250	75	5	25	100 at −50v
1N119	60 Volt Computer	B	−50 to +90	60	150	25	500	70	5	50	125 at −50v
1N120	60 Volt Computer	B	−50 to +90	60	150	25	500	70	5	50	200 at −50v
‡1N126A	60 Volt Diode	A	−55 to +90	60	90	30	350	75	5	25	800 at −50v
‡1N127A	100 Volt Diode	A	−55 to +90	100	90	30	300	125	3	25	300 at −50v
‡1N128	40 Volt Diode	A	−55 to +90	40	90	30	300	50	3	25	10 at −10v
1N191	90 Volt Computer	A	−55 to +90	90	90	30	300	90	5	–	125 at −50v
1N192	60 Volt Computer	A	−55 to +90	60	90	45	300	70	5	50	100 at −50v
‡1N198	High Temperature	A	−55 to +90	80	90	30	300	100	4	25	50 at −50v
1N198A	High Temperature	A	−55 to +90	80	90	30	300	100	4	25	50 at −50v
1N198B	80 Volt Computer	A	−55 to +90	80	90	30	300	100	4	25	50 at −50v
1N294	60 Volt Diode	A	−50 to +100	60	150	50	500	70	5	25	800 at −50v
1N295	50 Mc Detector	A	−50 to +100	40	125	30	300	50	–	–	180 at −10v
1N297	High Back Res.	A	−50 to +100	80	100	35	500	100	3.5	25	100 at −50v
1N298	High Back Res.	A	−50 to +100	70	120	50	500	85	30	(at +2.2v)	250 at −40v
1N632	60 Volt Computer	A	−50 to +90	60	45	16	100	90	7.5	–	120 at −60v
1N636	60 Volt Diode	A	−55 to +90	60	90	30	300	75	2.5	25	20 at −20v
1N805	455 Kc Detector	A	−50 to +90	40	150	35	–	50	3	–	100 at −10v
‡1N933	50-V Computer	A	−65 to +90	50	90	30	400	100	4	17	80 at −80v
D1820	High Speed Computer	A	−65 to +90	20	100	50	200	30	10	(at +1.3v)	25 at −15v

**Also available in Outline A ■ **Lead Length = 0.5" (approx.) ■ ‡Available to applicable military specifications ■ [1]Silicon Point Contact Diodes*

GERMANIUM BONDED DIODES

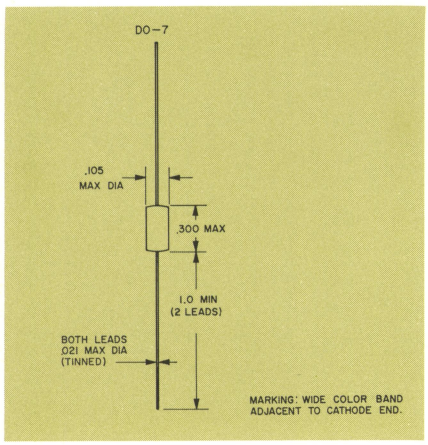
Absolute Maximum Ratings at (25°C)

Type No.	Description	Outline Pg. 30	Temp. Range °C	Reverse Working Voltage (dc-volts)	Recurrent Peak F'wd. Current (ma)	Avg. F'wd. Current (ma)	Surge Current 1 Sec. (ma)	Peak Reverse Voltage (volts)	Characteristics Forward Current (ma) at +1 volt Min.	Max.	Reverse Current (μa max)
1N98	General Purpose	A	−78 to +90	80	200	60	350	100	20	—	100 at −50v
1N98A	High Forward	A	−78 to +90	80	250	70	400	100	40	—	100 at −50v
1N99	General Purpose	A	−78 to +90	80	200	60	350	100	10	—	200 at −80v
1N100	General Purpose	A	−78 to +90	80	200	60	350	100	20	—	50 at −50v
1N100A	High Forward	A	−78 to +90	80	250	70	400	100	40	—	50 at −50v
1N117	General Purpose	A	−78 to +90	60	90	30	250	75	10	—	100 at −50v
1N118	General Purpose	A	−55 to +90	60	200	60	350	75	20	—	100 at −50v
1N118A	High Forward	A	−78 to +90	75	250	30	250	50	40	—	100 at −50v
***1N198**	High Temperature	A	−55 to +90	80	90	30	300	100	4ma	—	50 at −50v
***1N270**	High Forward–Computer	A	−55 to +100	80	325	90	500	100	200	—	100 at −50v
***1N276**	High Forward–Computer (0.3 μs max)	A	−55 to +90	50	150	40	400	100	40	—	100 at −50v
***1N277**	High Forward–Computer	A	−65 to +90	100	270	75	400	125	100	—	250 at −50v
1N279	High Forward–Computer (0.5 μs max)	A	−78 to +80	30	300	80	450	35	100	—	900 at −20v
***1N281**	High Forward–Computer	A	−55 to +90	70	270	75	400	75	100	—	500 at −50v
1N283	General Purpose	A	−55 to +90	20	350	100	500	25	200	—	20 at −10v
1N273	High Forward–Diode	A	−65 to +90	30	300	80	450	20	100	—	20 at −20v
1N497	General Purpose	A	−78 to +90	20	250	80	250	30	100	—	20 at −20v
1N498	General Purpose	A	−55 to +90	40	250	80	250	60	100	—	25 at −40v
1N500	High Forward–Diode	A	−55 to +100	60	270	100	400	80	100	—	40 at −60v
1N631	Computer	A	−29 to +70	60	150	60	500	90	—	—	1000 at −90v
1N633	80V–Computer	A	−55 to +85	80	150	60	—	120	150	—	180 at −90v
1N634	100V–Computer	A	−55 to +95	100	200	60	300	100	50	—	100 at −100v
1N635	High Volt	A	−55 to +75	150	200	60	200	170	50	—	150 at −150v
1N695	High Temperature	A	−65 to +90	20	250	100	400	20	100	—	20 at −10v
1N770	High Forward–Computer	A	−78 to +90	20	200	40	300	30	15	(at −.5v)	40 at −10v
1N911	Special Forward	A	−65 to +90	20	200	100	300	30	100	—	10 at −10v
1N949	High Forward–Computer	A	−78 to +100	50	350	100	500	50	10	(.34−.39v)	100 at −50v
1N995	Computer	A	−65 to +100	15	40	30	200	15	10	(at .5v)	10 at −6v
1N3097	High Forward–Pt. Contact	A	−50 to +100	40	100	35	150	40	1.5ma	at .5v	250 at −40v
1N3125	High Temperature	A	−65 to +90	40	300	100	300	50	50	5(at 0.5v)	100 at −40v

**Available to applicable military specifications*

DIODE & RECTIFIER OUTLINE DRAWINGS

A



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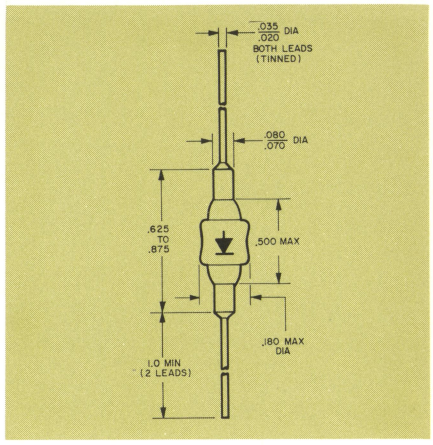

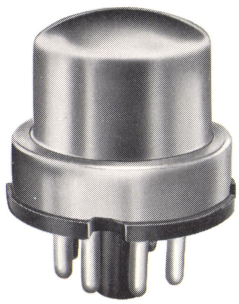

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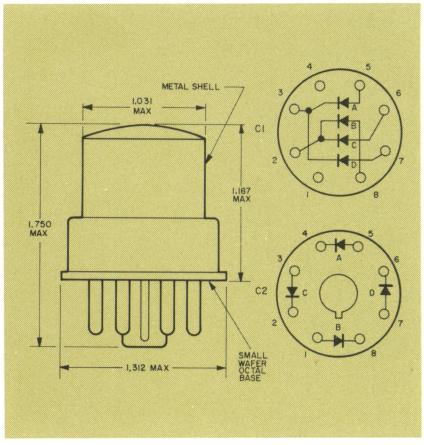

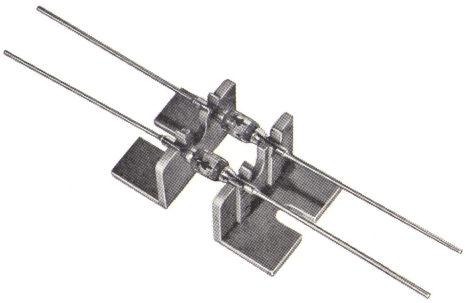

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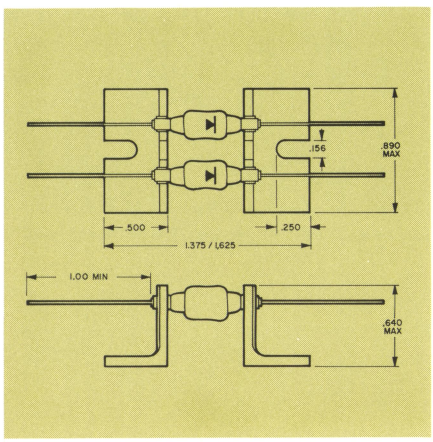
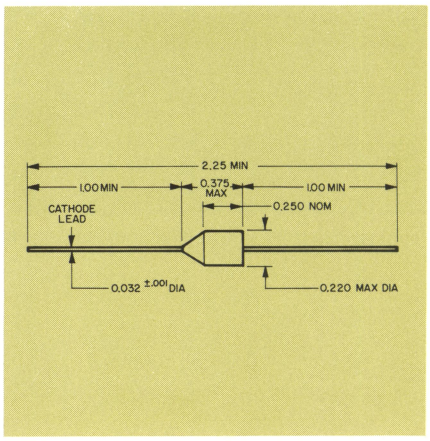




Sylvania offers microwave engineers and designers the most complete line of microwave semiconductors in the industry. Starting with the development of the original microwave mixer and detector diode, Sylvania has been instrumental in the advancement of microwave semiconductor technology.

MICROWAVE SEMICONDUCTORS

A continuous program of product improvement and new device development has resulted in a product line consisting of silicon mixer and detector diodes, silicon and gallium arsenide varactor diodes, germanium, gallium arsenide and gallium antimonide tunnel diodes, PIN diodes, and custom engineered devices and packages to meet a wide variety of customer applications and requirements.

Another industry first was initiated by Sylvania with the development of a line of High Reliability mixer diodes, to provide devices with the degree of reliable operation dictated by today's sophisticated missile and space programs. The experience and background acquired since the inception of this program has been carried over and applied to the manufacture of varactor and tunnel diodes, thus affording diode users the highest quality microwave semiconductors in the industry.

MIXER AND DETECTOR DIODES

Sylvania's line of silicon mixer and detector diodes encompasses standard point contact devices from U.H.F. to millimeters. Packages for stripline, coaxial, or waveguide structures plus special products such as power monitors, high burnout units and hermetic sealed devices provide a broad selection of microwave semiconductors. Custom engineering is available on request.

MIXER DIODES

Type No.	Outline Pg. 36, 37	Reversible (Outline B)	F Band	NF db
1N25, R	A	D4084	L	12.6
1N25A, AR	A	D4084A	L	10.3
1N25B, BR	A	D4084B	L	8.3
	A	1N416B	S	10.3
D4186B, BR	A	D4188B	S	10.3
1N21C, CR	A	1N416C	S	8.3
D4186C, CR	A	D4188C	S	8.3
1N831	G		S	8.3
1N21D, DR	A	1N416D	S	7.3
D4186D, DR	A	D4188D	S	7.3
1N21E, ER	A	1N416E	S	7.0
D4186E, ER	A	D4188E	S	7.0
	B	1N21WE	S	7.0
1N831A	G		S	7.0
1N21F, FR	A	1N416F	S	6.0
D4186F, FR	A	D4188F	S	6.0
D4180C, CR	A	1N3655	S	8.3
D4180E, ER	A	1N3655A	S	7.0
1N1132, R	E		S-X	9.5
	B	1N415B	X	11.5
D4187B, BR	A	D4189B	X	11.5
1N23C, CR	A	1N415C	X	9.5
D4187C, CR	A	D4189C	X	9.5
1N832	G		X	9.5
1N149, R	A		X	8.3
1N23D, DR	A	1N415D	X	7.8
D4187D, DR	A	D4189D	X	7.8
1N23E, ER	A	1N415E	X	7.5
D4187E, ER	A	D4189E	X	7.5
	B	1N23WE	X	7.5
1N832A	G		X	7.5
1N23F, FR	A	1N415F	X	7.0
D4187F, FR	A	D4189F	X	7.0

Type No.	Outline Pg. 36	Reversible (Outline B)	F Band	NF db
D4181C, CR	A	1N3745	X	9.5
D4181D	A	1N3746	X	8.5
D4181E	A	1N3747	X	7.5
D4160		—	X	7.5
1N2510	C	—	X	9.5
1N78	C	—	Ku	12.0
1N918	G	—	Ku	12.0
D4082	C	—	Ku	12.0
1N78A	C	—	Ku	9.8
D4082A	C	—	Ku	9.8
1N78B	C	—	Ku	8.8
D4082B	C	—	Ku	8.8
1N3205	C	—	Ku	8.5
1N78C	C	—	Ku	8.3
D4081	C	—	Ku	7.8
1N78D	C	—	Ku	7.5
D4081A	C	—	Ku	7.3
1N286	C	—	X-K	13.1
1N286A	C	—	X-K	11.3
1N26	C	—	K	13.1
D4175	C	—	K	13.1
1N26A	C	—	K	11.3
D4175A	C	—	K	11.3
1N26B	C	—	K	10.0
1N26C	C	—	K	9.5
D4089	C	—	K	9.3
1N53	D	—	Ka	13.1
D4136	D	—	Ka	13.1
1N53A	D	—	Ka	11.1
D4136A	D	—	Ka	11.1
1N53B	D	—	Ka	10.0
D4136B	D	—	Ka	10.0
1N53C	D	—	Ka	9.0
1N53D	D	—	Ka	9.0

DETECTOR DIODES

Forward	Outline Pg. 36, 37	Reversible (Outline B)	Frequency Band	TSS@ BW=10mc (—dbm)	FM (Min.)
1N830	G		100mc		
1N830A	G		100mc		
1N358	E		L-X	40	15
1N630	F		L-X	40	15
1N358A	E		L-X	45	30
1N369A	E		L-X	40	15
1N32	A	1N2102	S	49	85
1N369	E		S-X	40	15
1N1610	F		S-X	40	15
1N1611	A	D4072	X	51	130
1N1611A	A	D4072A	X	53	220
1N31	C		X	47	55
1N31A	C		X	53	200
1N833	G		X	40	15
1N833A	G		X	45	
1N3143	A	1N3778	X	Power	
		D4919	X	Monitor	
1N2926	C		X-K	40	15
1N2926A	C		X-K	45	30
D4194	C		Ku	48	100
D4194A	C		Ku	51	200
D4195	C		K	48	100
D4195A	C		K	51	200
D4196	C		Ka	45	50
D4196A	C		Ka	48	100
1N446	D		Ka	40	15
D4074	H		Q-W	40	25
D4074A	H		Q-W	45	50

TUNNEL DIODES

Tunnel diodes are available in germanium and gallium antimonide. These devices are specified for use as low noise amplifiers, mixers, and oscillators. Peak currents of less than 1 ma are also available.

Type No.	Outline Pg. 37	Type No.	Outline Pg. 37	Type No.	Outline Pg. 37	Peak Current I_p ma	I_p/I_v Typical	Typical Negative Resistance r_j ohms	Ct Typical pf	Rs Typical ohm	Typical Resistive Cutoff Frequency
D4961	I	D5061	J	D5071	K	2.0 ± 0.2	8	65	3.7	1.0	7
D4961A	I	D5061A	J	D5071A	K	2.0 ± 0.2	8	65	2.0	1.5	13
D4961B	I	D5061B	J	D5071B	K	2.0 ± 0.2	8	65	1.4	2.2	18
D4961C	I	D5061C	J	D5071C	K	2.0 ± 0.2	8	65	1.0	3.0	32
D4962	I	D5062	J	D5072	K	5.0 ± 0.5	8	26	7.5	0.6	6
D4962A	I	D5062A	J	D5072A	K	5.0 ± 0.5	8	26	3.8	0.8	11
D4962B	I	D5062B	J	D5072B	K	5.0 ± 0.5	8	26	2.3	1.4	17
D4962C	I	D5062C	J	D5072C	K	5.0 ± 0.5	8	26	1.5	1.8	27
D4963	I	D5063	J	D5073	K	10 ± 1.0	8	13	14	0.25	7
D4963A	I	D5063A	J	D5073A	K	10 ± 1.0	8	13	7	0.4	11
D4963B	I	D5063B	J	D5073B	K	10 ± 1.0	8	13	4	0.6	17
D4963C	I	D5063C	J	D5073C	K	10 ± 1.0	8	13	2.3	1.2	26
D4964	I	D5064	J	D5074	K	20 ± 2.0	8	6.5	27	0.2	5
D4964A	I	D5064A	J	D5074A	K	20 ± 2.0	8	6.5	13	0.3	9
D4964B	I	D5064B	J	D5074B	K	20 ± 2.0	8	6.5	7	0.45	14
D4964C	I	D5064C	J	D5074C	K	20 ± 2.0	8	6.5	3.5	0.7	25
D4965	I	D5065	J	D5075	K	50 ± 5.0	8	2.6	67	0.12	4
D4965A	I	D5065A	J	D5075A	K	50 ± 5.0	8	2.6	32	0.2	7
D4965B	I	D5065B	J	D5075B	K	50 ± 5.0	8	2.6	16	0.35	10
D4965C	I	D5065C	J	D5075C	K	50 ± 5.0	8	2.6	7.5	0.5	18
D4966	I	D5066	J	D5076	K	100 ± 10	8	1.3	135	0.10	3
D4966A	I	D5066A	J	D5076A	K	100 ± 10	8	1.3	67	0.18	5
D4966B	I	D5066B	J	D5076B	K	100 ± 10	8	1.3	32	0.25	8
D4966C	I	D5066C	J	D5076C	K	100 ± 10	8	1.3	14	0.4	14

VARACTOR DIODES

Sylvania varactors are available in silicon and gallium arsenide and in an assortment of packages designed with high reliability in mind. Hermetically sealed, bonded junctions offer maximum assurance for continuous operation. The varactor chart indicates the approximate capability of silicon devices. By proper observation, it is possible to select the device and package style required to meet specific requirements.

3rd Digit Code Number / Voltage Breakdown		0 6 volts	1 15 volts	2 24 volts	3 30 volts	4 45 volts	5 60 volts	6 90 volts	7 120 volts
4th Digit Capacitance									
Code No.	Cj —6v								
0	0.1 —0.4	D4*00L	D4*10L	D4*20K	D4*30J	D4*40J	D4*50H	D4*60D	D4*70B
1	0.4 —1.0	D4*01K	D4*11K	D4*21J	D4*31H	D4*41H	D4*51E	D4*61B	D4*71
2	1 —2	D4*02H	D4*12H	D4*22G	D4*32F	D4*42F	D4*52D	D4*62A	D4*72
3	2 —4	D4*03G	D4*13G	D4*23F	D4*33D	D4*43D	D4*53C	D4*63A	D4*73-1
4	4 —8	D4*04E	D4*14E	D4*24D	D4*34B	D4*44B	D4*54A	D4*64	D4*74-1
5	8 —14	D4*05B	D4*15B	D4*24A	D4*35	D4*45	D4*55-1	D4*65-1	D4*75-2
6	14 —20	D4*06A	D4*16A	D4*26	D4*36-1	D4*46-1	D4*56-2	D4*66-3	D4*76-3
7	20 —30	D4*07	D4*17	D4*27	D4*37-1	D4*47-1	D4*57-2	D4*67-3	D4*77-3

Letter suffix indicates best available cutoff frequency for given voltage breakdown & capacitance.

*PACKAGE TYPE	Outline Pg. 38
(2) — D4200 Series	L
(6) — D4600 Series	M
(8) — D4800 Series	N

SUFFIX & CORRESPONDING CUTOFF

—3 = 5 Kmc	B = 40 Kmc	G = 90 Kmc
—2 = 10 Kmc	C = 50 Kmc	H = 100 Kmc
—1 = 15 Kmc	D = 60 Kmc	J = 120 Kmc
— = 20 Kmc	E = 70 Kmc	K = 140 Kmc
A = 30 Kmc	F = 80 Kmc	L = 160 Kmc

HIGH POWER VARACTOR DIODES

Type No.	Outline Pg. 38	Breakdown Voltage V_B Volts (min)	Junction Capacitance C_{jo} (pf) Min	C_{jo} (pf) Max	C_j—6 Min	C_j—6 Max	Series Resistance R_S (ohms) (max)	Thermal Resistance °C/Watt
D-5030A	O	90	40	80	16.7	33.4	2.0	6
D-5030B	O	90	20	40	8.3	16.7	2.5	6
D-5030C	O	90	10	20	4.2	8.3	3.0	8
D-5030D	O	90	5	10	2.1	4.2	3.5	10
D-5031A	O	120	40	80	16.7	33.4	2.0	6
D-5031B	O	120	20	40	8.3	16.7	2.5	6
D-5031C	O	120	10	20	4.2	8.3	3.0	8
D-5031D	O	120	5	10	2.1	4.2	3.5	10

GALLIUM ARSENIDE VARACTOR

Point Contact Design

Type No.	Outline Pg. 38	F_c—2v	C_j Typical	BV	$\triangle C_j$ (—3v) Typical
D4957	P	100 gc	0.25	—6v	0.48
D4957A	P	150 gc	0.25	—6v	0.48
D4957B	P	200 gc	0.25	—6v	0.48

GALLIUM ARSENIDE VARACTOR

Diffused Junction Mesa Design

Type No.	Outline Pg. 38	Bv^2	F_{co}—6v[3] Min.	F_{co}—2v[3]	C_{jo}[4] Min.	C_{jo}[4] Max.	$\triangle C_j$ (—6v)[7]
D5047	Q	—6v	150 Gc	105 Gc	0.2pf	0.7pf	0.53 min
D5047A	Q	—6v	200 Gc	150 Gc	0.2pf	0.6pf	0.53 min
D5047B	Q	—6v	250 Gc	190 Gc	0.2pf	0.5pf	0.53 min

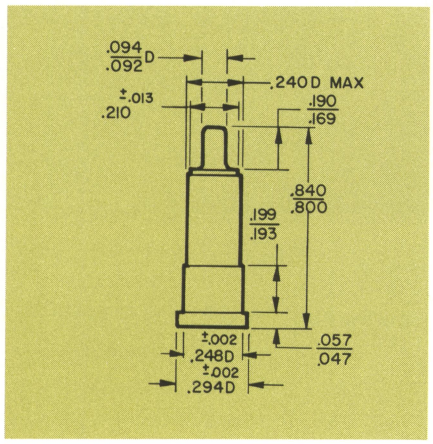
PIN MICROWAVE SWITCHING DIODES

Sylvania PIN diodes are available with breakdown voltages of 200-1000 V. They are constructed in a miniature ceramic, double ended, welded package, and are used as voltage variable attenuators, limiters and high power switches.

Type No.	Outline Pg. 38	Breakdown Voltage V_B volts (min)	Junction Capacitance Pf C_T (max)	Series Resistance R_S ohms (max)	Power Dissipation P_T watts
D-5020	R	200	0.4	3.0	1.0
D-5020A	R	200	0.6	2.5	1.5
D-5020B	R	200	0.8	2.0	2.0
D-5020C	R	200	1.1	1.5	2.5
D-5020D	R	200	1.7	1.5	5.0
D-5021	R	300	0.4	3.0	1.0
D-5021A	R	300	0.6	2.5	1.5
D-5021B	R	300	0.8	2.0	2.0
D-5021C	R	300	1.1	1.5	2.5
D-5021D	R	300	1.7	1.5	5.0
D-5022	R	400	0.4	3.0	1.0
D-5022A	R	400	0.6	2.5	1.5
D-5022B	R	400	0.8	2.0	2.0
D-5022C	R	400	1.1	1.5	2.5
D-5022D	R	400	1.7	1.5	5.0
D-5023	R	500	0.4	3.0	1.0
D-5023A	R	500	0.6	2.5	1.5
D-5023B	R	500	0.8	2.0	2.0
D-5023C	R	500	1.1	1.5	2.5
D-5023D	R	500	1.7	1.5	5.0
D-5025	R	1000	0.5	3.0	1.0
D-5025A	R	1000	1.0	2.5	1.5

MICROWAVE SEMICONDUCTOR OUTLINE DRAWINGS

A



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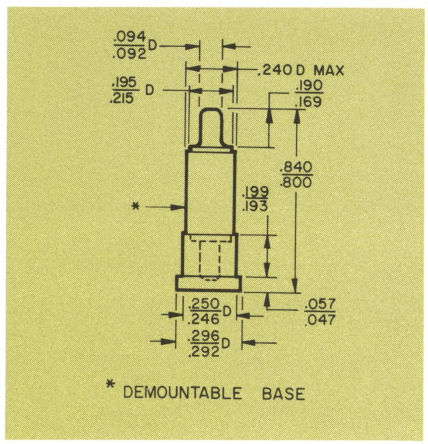

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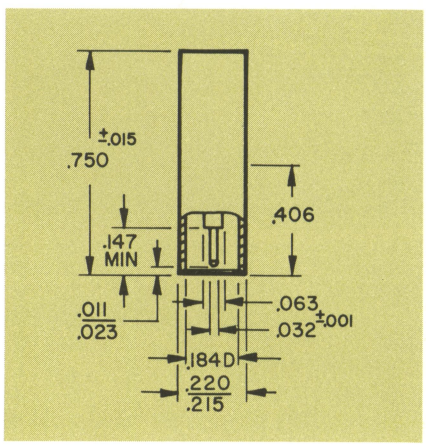

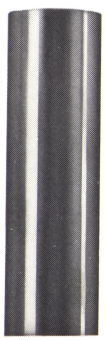

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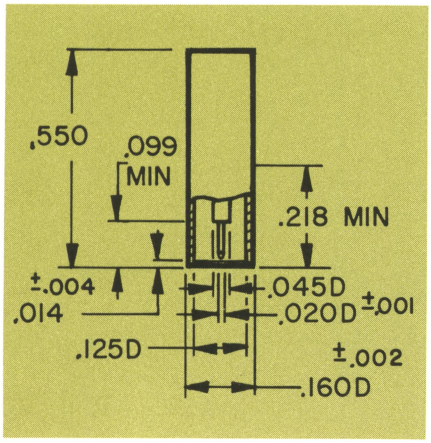

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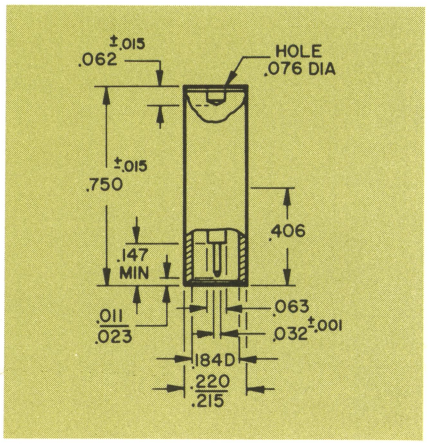

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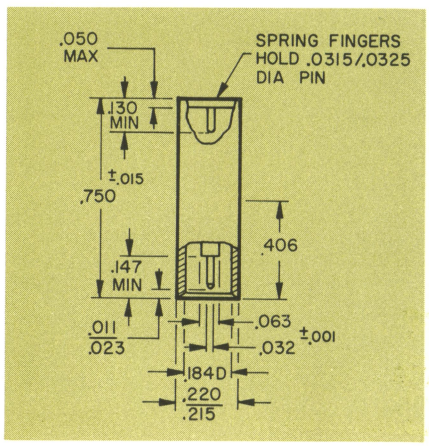
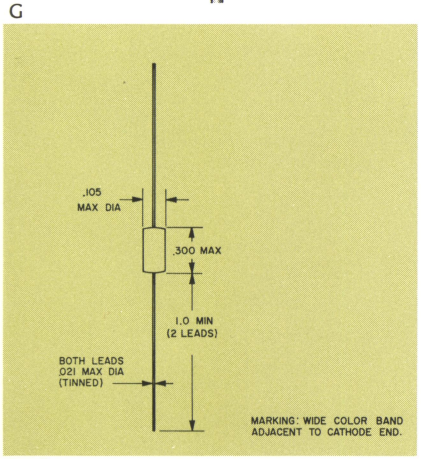


MICROWAVE SEMICONDUCTOR OUTLINE DRAWINGS

G



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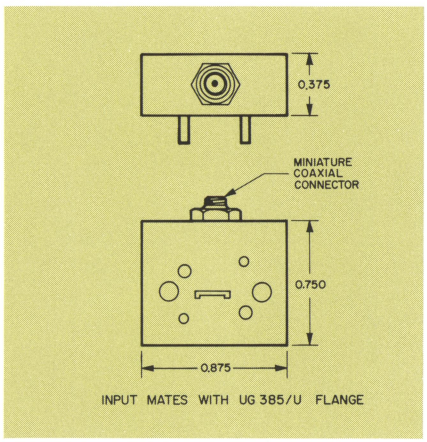

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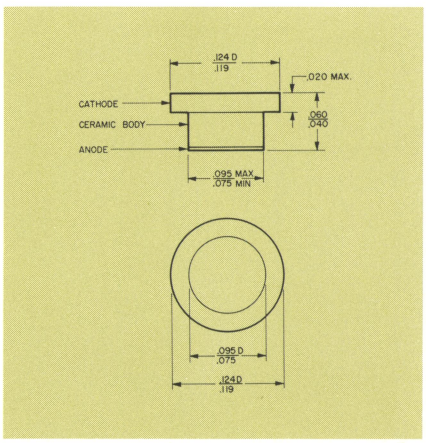

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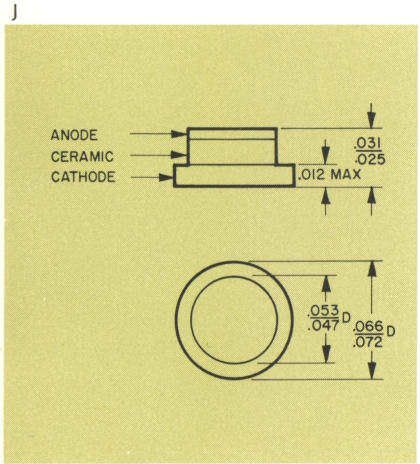

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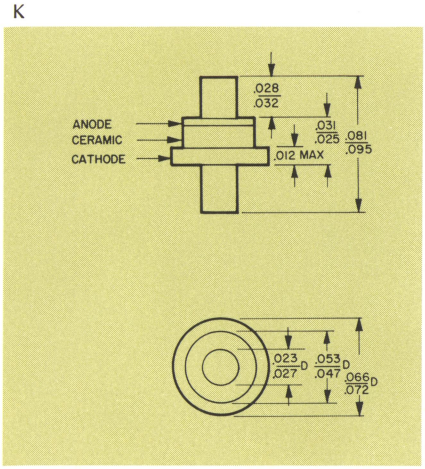

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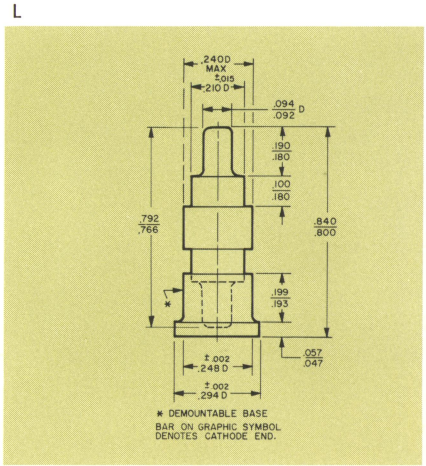
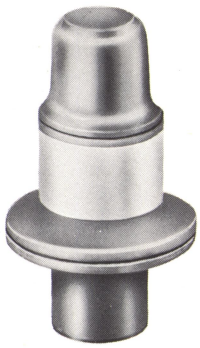


MICROWAVE SEMICONDUCTOR OUTLINE DRAWINGS



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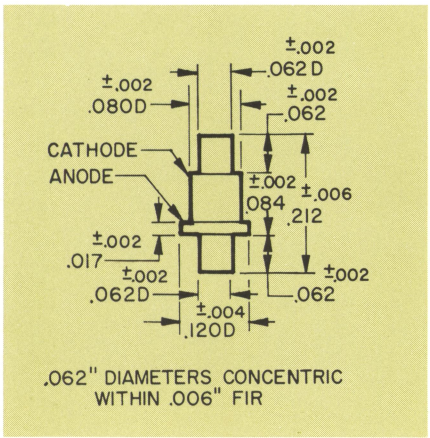

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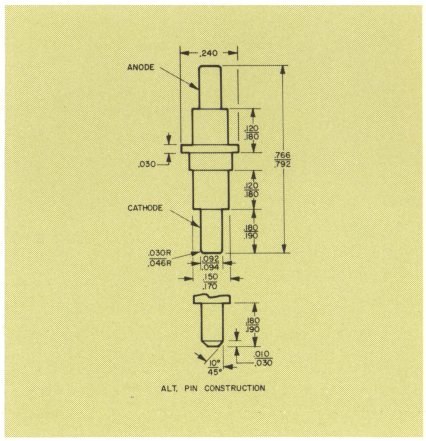

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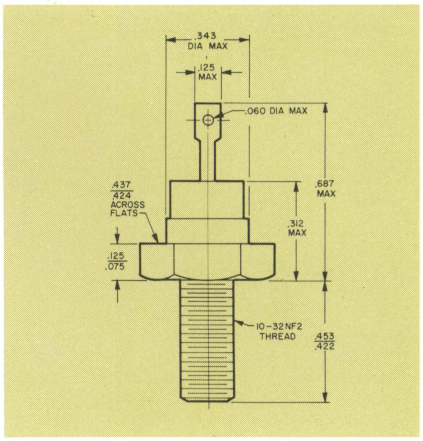

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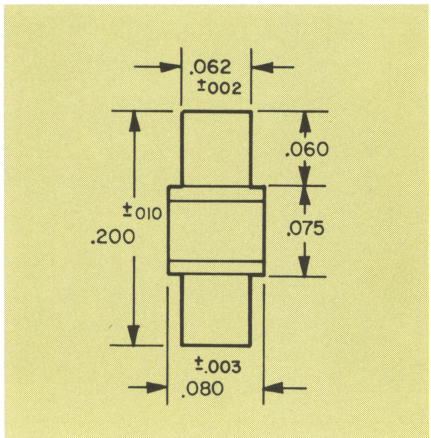

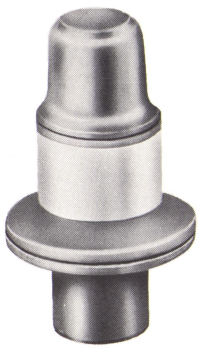

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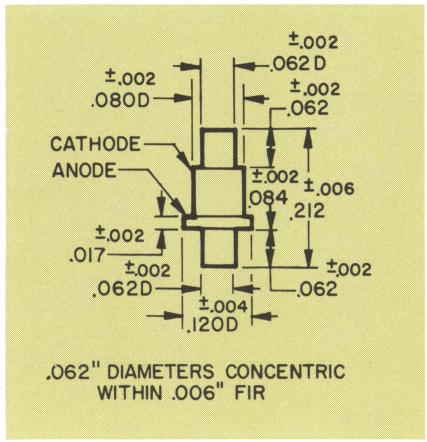

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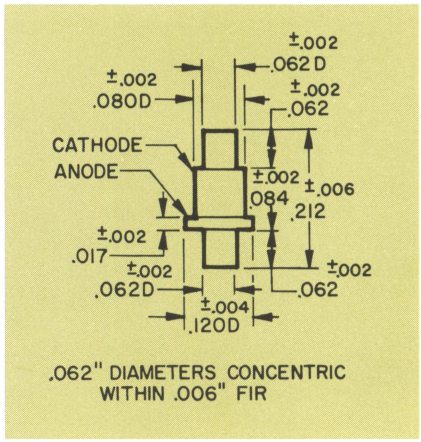

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